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ABSTRACT

The Queensland (Australia) Board of Secondary School Studies developed a geography syllabus for senior classrooms which was implemented in 1980. Revisions of the syllabus took place in 1982 and 1986. Based on the 1986 evaluation, this report provides an evaluation, a summary of the findings, and advice to principals and teachers. Twelve case studies, based on the data gathered from the schools surveyed, accompany the report. The case studies reflect the teachers' views and the students' perceptions of the syllabus. Copies of the correspondence and the evaluation instruments, the statistical data from the student questionnaires, and the explanations for the case study graphs are included in the appendices. (DJC)

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SYLLABUS EVALUATION REPORT

MAY 1987

FINAL REPORT OF THE EVALUATION OF THE SECOND PILOT IMPLEMENTATION OF SENIOR GEOGRAPHY UNIT IIIB

BOARD OF SECONDARY SCHOOL STUDIES

AUSTRALIAN GEOGRAPHICAL INQUIRIES

FINAL REPORT OF THE EVALUATION OF THE SECOND PILOT IMPLEMENTATION OF SENIOR GEOGRAPHY UNIT IIIB

SUBMITTED TO THE BOARD OF SECONDARY SCHOOL STUDIES
MAY 1987

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28th May, 1987

The Executive Officer,
Board of Secondary School Studies,
Queensland.

Dear Sir,

In February, 1986 you invited me to prepare an evaluation report on Senior Geography Unit IIIB: Australian Geographical Inquiries and to chair an evaluation committee established to make appropriate recommendations to the Board as to the future of this unit.

I am now pleased to submit my report and the recommendations of the evaluation committee for the consideration of the Board.

Yours faithfully,

(Dr) John G. Lidstone

PREFACE

This document reports an evaluation carried our during semester 2 1986 on the second pilot implementation of Senior Geography Unit IIIB: Australian Geographical Inquiries.

The substantive findings of the evaluation are contained in the case study reports prepared on each of the schools which participated in the implementation of the syllabus. Since the participating schools do not represent a random sample of all schools in the state, it is not possible to generalize from the cases portrayed here to all potential cases. Neither would such generalizations be useful in guiding future implementations, since each teacher, school and group of students combine to produce a unique educational setting.

The writer appreciates that readers may wish to compare the current implementation with previous implementations of this syllabus. Accordingly a summary has been prepared using the same criteria as those used in the earlier pilot evaluation. This summary, together with some comments by the present evaluator, is presented in the early pages of the document and has been printed on coloured paper to aid identification. The recommendations of the Evaluation Committee on the future of the syllabus, however, are based on an examination of the report on each school as independent implementations of the course.

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ANTECEDENTS TO THE PRESENT EVALUATION REPORT

Antecedents to the present evaluation report

In mid-1976, a working party established by the Geography Syllabus Sub-committee of the Queensland Board of Secondary School Studies was asked to investigate the potential of placing emphasis in senior geography classrooms on the processes of learning geography rather than on teaching the products of other geographical minds. At this time, other senior geography units with a specifically Australian focus were perceived to be in need of revision, and so, as a result of the deliberations of the working party, a syllabus document entitled: "Senior Geography Unit IIIB: Australian Geographical Inquiries" was eventually produced and rapidly became known by its initials: AGI.

This syllabus document was sent for trial to five schools in 1978, and an evaluation conducted under the Chair of D.W.McNeill. As a result of this evaluation, the syllabus document was referred back for modification with the recommendation that it should be re-trialled.

After the recommendations of the Geography Syllabus Sub-committee had been passed to the Curriculum Committee, a second report written by R. Gerber and R. Herschell and based on a "Special orientation meeting for Geography Trial Unit 'Australian Geographical Inquiries'" held in February of that year, was presented. This latter report appears to suggest that the problems identified with the new syllabus were not due to anything inherent in the syllabus itself, but emanated from some professional lack on the part of the trial schools' teachers. However, these allegations were not substantiated.

After substantial revision of the syllabus document, a second trial was arranged in late 1980. Seven new schools were involved and a new evaluation committee was convened under the Chair of V. L. Bartlett.

Bartlett's evaluation was conducted according to a three phase model as follows:

Phase 1: Antecedents to the study included a brief historical review of AGI, and an examination of the trial syllabus document. This examination "permitted a form of intrinsic evaluation of the document's intents, structure and statements" (p.2)

Phase 2: Process evaluation - "In this section of the evaluation, greater attention was given to the way in which teachers implemented the syllabus. The focus of the evaluation was on the participating teachers, their interpretations, concerns and problems in teaching Australian Inquiries. The approach of the committee was to observe and assist participating teachers in preparation for instruction, in the instructional process itself and in the review of their actions and the events that had occurred in their classrooms".

The Bartlett evaluation then reported the findings of the evaluation committee who visited the various trial schools under four headings each of which was phrased as a question:

1. How is AGI being taught in trial schools?
2. What are the conceptualizations of inquiry among trial teachers?
3. What are the current constraints on the teaching of AGI?
4. What changes are required in preparing a syllabus document to guide future teachers of AGI?

In the light of findings under these headings, the evaluators recommended, in March 1981, that the AGI unit should proceed to the pilot phase of syllabus development on the condition that a number of changes were made to the syllabus document. These proposed changes included the addition of a'Commentary' to each of the sections on content objectives and skills objectives.

By May 1981, a revised edition of the syllabus document, apparently reproduced verbatim from that recommended in the Bartlett report, had been published and approved for pilot implementation during both semesters of 1982.

Drs Ian MacPherson and Peter Wilson were invited to act as co-evaluators of this pilot implementation by eleven schools, of which only three had been involved in the preceding trial implementation.

Their report was organized around five themes:
A. AGI and the Student
B. AGI and the Teacher
C. AGI and Program Planning
D. AGI and Assessment
E. AGI and the Board of Secondary School Studies

The broad findings of this evaluation under each of the above headings will be summarized below.

A. In considering AGI and the Student, MacPherson and Wilson stated that AGI was better suited to more able students and inappropriate for the less able. They also found that students who enjoyed a more independent style of learning, had good reading skills and were well motivated tended to enjoy AGI and to do well. Students who were more dependent on the teacher and favoured a more structured and more content-oriented approach to learning tended not to enjoy the course or see the underlying usefulness of the process approach.

The evaluators went on to recommend, firstly, that students could be prepared for AGI by the introduction of an inquiry approach in Years 8 - 10 and in other senior geography, and secondly, that students for AGI should be carefully selected on the basis of learning styles and ability.

B. The examination of AGI and the Teacher revealed that the teachers regarded AGI as "a most worthwhile experience for their own professional development". However, the evaluators also commented that "a list of references at the end of the syllabus document is an insufficient support to busy teachers who are trying both to understand what the inquiry process is and implement it at the same time". Recommendations in this case were for increased support services.

C. Program Planning for AGI was seen as being complicated by

internal inconsistencies of the syllabus document. These were identified both in terms of the relationship of content, skills and processes in work programmes and in terms of the number and variety of topics which the syllabus designers intended to be investigated in the course of the semester.

The evaluators recommended that the document should be revised to clarify the syllabus designers' intentions in both these areas, and also that all inquiries should be structured around the four key questions of geography as specified in the syllabus document.

D. Assessment was found by MacPherson and Wilson to be one of the greatest difficulties experienced by the teachers in the AGI pilot implementation. The difficulties were attributed to weaknesses in statements made in the syllabus document about assessment as well as teachers' concerns at the responses of their colleagues at moderation meetings. The evaluators recommended the revision of this section of the syllabus document and the provision of in-service seminars specifically directed at assessment instruments and programmes.

E. Finally, the evaluators recommended that the Board of Secondary School Studies take responsibility for providing the support to which they had referred earlier in their report, as well as closer liaison between those involved in introducing a new syllabus and directing its progress towards full implementation.

The conclusion of the MacPherson and Wilson evaluation was that the unit be reconsidered at the Pilot Stage of syllabus development before full implementation.

Accordingly, a further edition of the AGI syllabus document was prepared, approved and published in June 1984 and schools were invited to implement the course during 1986. Applications to participate in the re-pilot of AGI were accepted from thirteen schools, five of which had also participated in the 1982 pilot. However, in some cases AGI had been adopted in schools after the 1982 pilot and the course had been taught throughout the intervening period in anticipation of the formal period of evaluated pilot implementation.

The Re-Pilot of AGI, 1986

The present writer was invited to evaluate the re-pilot of AGI in February 1986.

PARTIES INVOLVED IN THIS EVALUATION

SCHOOLS PARTICIPATING IN THE 1986 RE-PILOT OF SENIOR GEOGRAPHY UNIT IIIB:AUSTRALIAN GEOGRAPHICAL INQUIRIES

1. Albany Creek S.H.S.
2. Beenleigh S.H.S.
3. Brisbane Grammar School
4. Coorparoo S.H.S.
5. Ferny Grove S.H.S.
6. The Gap S.H.S.
7. Hendra S.H.S.
8. Holland Park S.H.S.
9. Mitchelton S.H.S.
10. Mt. Carmel College
11. Pine Rivers S.H.S.
12. St. Aidan's Anglican School
13. St. George S.H.S.

The evaluator was Dr John Lidstone of the Social Studies Department of the Brisbane College of Advanced Education Kelvin Grove Campus.

The evaluation committee established by the Board of Secondary School Studies consisted of:

Mr Neville Biggs
(Albany Creek S.H.S. and Chair of the State Review Panel)

Mr Cliff Morgan
(Former pilot school teacher and Board of Secondary School Studies)

Mrs Janet Oliver
(Pilot school teacher)

Mr Wayne Fossey
(Benoa S.H.S. and Member of Geography Syllabus Sub-committee)

Mr John Fien
(Brisbane College of Advanced Education and Member of Geography Syllabus Sub-committee)

RECOMMENDATIONS OF THE EVALUATION COMMITTEE ON THE FUTURE OF SENIOR GEOGRAPHY UNIT IIIB: AUSTRALIAN GEOGRAPHICAL INQUIRIES

It is recommended by the Evaluation Committee that the syllabus Australian Geographical Inquiries proceed to general implementation

RATIONALE, CONDUCT AND INTERPRETATION

OF THIS EVALUATION

Rationale for the evaluation

In designing a strategy for evaluating the re-pilot phase of the AGI syllabus, the evaluator was mindful of the differences specified in the "Guidelines for the Development of Syllabuses for Board Subjects" (B.O.S.S.S. 1986) between the purposes of trial and pilot evaluations.

This document states that the trial evaluation should take as its prime focus the syllabus document, and that "while the syllabus should exercise some guidance over teacher programming and resultant student achievement it should allow and support teachers to translate its core and general requirements into effective work programs that take into account the abilities and backgrounds of the students in any particular school".

Pilot evaluators, on the other hand, are charged with the task of evaluating "the actual implementation of the syllabus via the work programs devised in the various school contexts".

Accordingly, the methodology adopted for this evaluation was based on the twin concepts of illuminative evaluation and democratic evaluation.

The former demands as a fundamental premise the acceptance that each pilot school constitutes what Smith (1980) has referred to as 'an educational setting in which a teacher, a class, a curriculum ..... are going about their activities for their own good purposes'. The aim of the evaluation is then to discover the nature of these 'good purposes' and to illuminate the 'activities' in such a way that those with institutional authority who approach this report may make their own decisions as to whether the pilot school teachers have in fact interpreted the syllabus document in ways which are acceptable to them. However, the evaluator would remind those reading this report of the seminal work of Parlett and Hamilton (1976) in which it was stated:

> "... an instructional system, when adopted, undergoes modifications that are rarely trivial. .. Its constituent elements are emphasized or de-emphasized, expanded or truncated, as teachers .... and students interpret and re-interpret the instructional system for their particular setting." (p.89)

The concept of democratic evaluation was developed by Macdonald (1974) who differentiated between autocratic, bureaucratic and democratic modes of procedure. While the former two modes are based on concepts of impartiality and objectivity, the democratic mode places the evaluator in the position of having to negotiate interpretations with those involved in the study rather than being free to impose them on the data. This includes a commitment to feed information back to participants.

While the prime aim of the evaluation was to create a situation in which the evaluator worked with the participating teachers in an attempt to clarify the ways in which they had implemented the AGI syllabus document in their classrooms, there was also the need to investigate the levels of bias which may, however unintentionally, have crept into the observations of both the teachers and the evaluator. To accomplish this, recourse was made to the notion of 'indefinite triangulation'. This strategy involves reference to a number of data sources, to a number of accounts of events, which provide details of how various interpretations of 'what happened'

are assembled from a variety of perspectives on a situation. In these ways, the evaluator has attempted to present the readers of this report with a series of case studies in which the decisions which have been made are transformed for the benefit of outsiders from being objects of perplexity to being objects of understanding.

The conduct of the evaluation

The evaluation was initiated by requesting from each school a copy of the accredited school work program for Senior Geography and a copy of the detailed school work programme for Unit IIIB "Australian Geographical Inquiries, together with details of the number of classes and students involved and the names of their teachers.

When both the current edition of the syllabus document and the information from the individual schools had been studied, a student questionnaire was constructed. This questionnaire sought student responses in the form of written comments, as well as frequency and attitudinal ratings on:

i) the AGI course as compared to the junior geography courses they had followed
ii) the AGI course as compared with other senior geography units
iii) the frequency with which they had used various types of teaching/learning resources and methods
iv) the students' perceptions of the value of each of these resources in their pursuit of their inquiries
v) the frequency with which they had experienced the various approaches to inquiry learning mentioned in the syllabus document
vi) the students' perceptions of the value of each of these approaches to inquiry learning.

When the results of the questionnaires had been processed, the evaluator visited the school and discussed his interpretations of the school work programme, the questionnaire data and the course as a whole with the individual teachers, and in the few cases in which the two roles did not coincide, with the subject head.

From the study of the school documentation, the questionnaire findings and the discussions with participating teachers, a draft report for each school was prepared and submitted to each of the participating teachers for their consideration.

When agreement had been reached with the participating teachers that the accounts of the way in which each school had approached AGI was a fair and accurate representation of the situation, a second draft was prepared, together with an interpretation by the evaluator. This second draft was submitted to the Evaluation Committee in order that this body might also offer an interpretation of the data which has been collected and might make its recommendations to the Geography Syllabus Sub-Committee of the Board of Secondary School Studies.

The final draft of the report was then prepared.

The interpretation of the report by various audiences

While the B.O.S.S.S. 'Guidelines' for evaluators (1984) requires that an evaluation report should make a clear recommendation on the future of a syllabus, they also state that:

> "Recommendations should be made regarding what procedures a school should adopt to enhance its translation of the syllabus into a work program that effectively and efficiently plans the subect curriculum in the school. A summary of these recommendations called 'General Advice to Principals and Teachers' should be made"

Thus, while the primary audience of this report is the Board of Secondary School Studies and its constituent committees and sub-committees, there is a secondary audience in the form of those teachers who may wish to make evaluative decisions on the viability of the course in their own teaching situations, and potentially, in the event that the Curriculum Committee of the Board approves AGI for full general implementation, those teachers who seek guidance from the experiences of professional colleagues as to appropriate methods of procedure.

Much educational research, including the previous evaluations of AGI, have attempted to draw generalizations with high levels of predictive reliability from the study of specific and localized phenomena. It is the present writer's contention that such broad generalizations seldom offer help to classroom practitioners who operate in the context of problems and decisions which are highly idiosyncratic. For these practitioners, the problem is how to infer the significance of findings presented in general terms to their own situations. This may be the reason why classroom practitioners tend to place their faith less on educational research and more on practitioner lore based on conventional wisdom accumulated from past experience.

Despite this warning that case study evaluation does not permit generalizations to be made at high levels of predictive reliability, the evaluator suggests that those for whom the prime purpose of reading the report is to decide whether the course Senior Geography Unit IIIB: Australian Geographical Inquiries should be approved for general implementation throughout the State of Queensland should place their greatest faith in the general comments presented by the evaluator and the Evaluation Committee appointed by the Board.

The present evaluator is also of the opinion that, in view of the findings and recommendations of the previous pilot evaluation carried out under the direction of MacPherson and Wilson, the present report should address each of the issues raised there specifically, and in the form of generalizations based on the data collected in the course of the present evaluation. Such an attempt may show the extent to which the recommendations made in the 1983 report have been implemented and whether teacher attitudes and perceptions have changed in the intervening period as experience with the syllabus amongst those geography teachers involved has increased.

Those who approach this document in search of insight into individual instances illuminating the common sense knowledge of practitioners and the constraints under which they work, are invited to generalize from the specific cases presented here to their own experiences. In this case, it is the reader who should ask: 'What is there in this study which I can apply to my own situation, and what clearly does not apply?'

SUMMARY OF THE FINDINGS OF THE SECOND PILOT IMPLEMENTATION

(According to the criteria used in the evaluation of the first Pilot Implementation)

Summary of findings according to the criteria defined in the initial pilot evaluation under the direction of MacPherson and Wilson (1983)

Macpherson and Wilson structured their evaluation report on the first pilot implementation of AGI under five headings. These were:

A. AGI and the Student
B. AGI and the Teacher
C. AGI and Program Planning
D. AGI and Assessment
E. AGI and the Board of Secondary School Studies

Accordingly, the findings of the present investigation are here presented with this same structure.

A. Australian Geographical Inquiries and the Student

The overwhelming majority of the students who followed the AGI course regarded it as of greater value than both the geography courses they had experienced in Grades 8 - 10 and, in those cases where AGI was taught other than in the first semester of the senior course, the other senior units in geography. Student comments in praise of AGI emphasized the benefits in terms of the opportunities to develop research skills and skills of independent study; the opportunities to study topics with an Australian orientation, particularly those of local or regional significance; the opportunity to study topics which were perceived by students to have direct relevance to their own lives either currently or in the future.

Students sometimes expressed dissatisfaction with AGI due a perceived irrelevance of the topics chosen. However, there was little agreement between students on which topics were irrelevant. Less frequently, some doubts were expressed about the aims of the inquiry being pursued.

No evidence was found that AGI is more suited to students of greater ability, and indeed, many teachers stated that, although more able students generally performed better than less able students, it was the less able students who often showed the greatest improvements in overall performance and motivation as a result of following AGI. No teachers were of the opinion that students should be selected for AGI, and certainly not on the basis of ability, although one or two suggested that a choice could be offered in those schools where numbers permit.

B. AGI and the Teacher

The teachers involved in the re-pilot implementation agreed that AGI had played a considerable part in their own professional development, and expressed their appreciation of the increased freedom which they perceived themselves to possess in AGI compared with other senior geography units. The investigations of the school work programmes and subsequent discussions with the teachers in the light of their students' comments revealed that the syllabus was being interpreted in a variety of different ways. At one extreme AGI was interpreted as highly structured activity based learning, at the other, AGI students were given almost total freedom to investigate

any aspect of Australian life which appealed to them. In most cases, however, it is the evaluator's opinion that teachers created inquiries in the light of the syllabus guidelines and according to the styles of inquiry which lay between these two extremes and with which both they and their students felt comfortable.

Furthermore, although different teachers interpreted their roles in the inquiry classroom in different ways - some being in the opinion of the evaluator rather over-prescriptive and some leaving their students with too little direction too soon, - all the teachers felt that they had benefitted from the students' responses and their experiences of the implementation.

C. AGI and Programme Planning

The syllabus document had been accepted at the trial stage of syllabus development as an appropriate syllabus for pilot implementation. The evaluator considers that the document was used very effectively by the teachers in the development of work programmes for their students. In preparing their work programmes, the teachers interpreted the document in a variety of ways within the scope and spirit of the syllabus. Variations in these interpretation may be attributed to perceptions of students' needs, the availability of resources and the students' stated preferences.

Despite this general finding on programme planning, there were some schools amongst those piloting the syllabus where the programme was rather narrower than the evaluator regards as ideal, either in terms of the geographical approaches adopted, the areal distribution of the topics chosen for investigation, or the teaching/learning strategies adopted. Similarly, some programmes would benefit from a greater emphasis on the key questions of geography and from providing a clear focus for each inquiry by phrasing each in question form.

It is the finding of the evaluator, based on his discussions with the teachers involved, that some inconsistencies in the document remain to be clarified. In particular, the "Core and Content Matrix" appears to be contradicted by later advice on program planning. Nevertheless, the majority of the teachers saw these apparent contradictions as affording them considerable freedom in their interpretations of the syllabus, and rather than being regarded as problematic, the various statements about programme planning have been regarded as suggestions for implementation among which the teachers are at liberty to choose. Many of the teachers referred to various meetings of pilot school teachers, both official and informal, as time when they were able to discuss and negotiate appropriate interpretations of the document. In many cases, the teachers stated that, although they had not found the perceived inconsistencies to be problematic, they felt that some clarification was desirable for the benefit for teachers less experienced than themselves. Much of this clarification may be achieved through some minor editing. When pressed for further suggestions for the clarification of the document, two major areas of concern emerged.

Firstly, it was felt that the document contained perhaps too much information on the nature of inquiry and inquiry learning. Several

teachers suggested that while the syllabus document could and should include a number of examples of approaches to inquiry, it should not be presented as a manual of inquiry-based teaching.

Secondly, it was felt that the number of units required to be included in a work programme requires clarification in order to avoid possible confusion.

D. AGI and Assessment

In view of the recommendations of MacPherson and Wilson, Section 12 of the 1984 revision of the syllabus document, entitled "Evaluation and Assessment", includes a list of techniques for assessment. It is a measure of the success of the participating teachers in interpreting the spirit of the syllabus document that, with the exceptions of objective tests and attitudinal tests, various combinations of all these methods have been applied during the second pilot implementation.

Those teachers who adopted more structured and formal approaches to AGI tended to place a greater reliance on examinations and tests that those who adopted a less structured and informal approach. However, the examinations which were applied were overwhelmingly of the data response and short answer types, with considerable influence from the work of the U.K. Geography 16 - 19 Project approaches being observed.

It is the evaluator's opinion, based on a study of the instruments adopted by the participating teachers and the comments of students and teachers, that a combination of data response examination, audio-visual presentation and independent research study provides the most effective method of assessing the AGI course, but this should not be interpreted as implying any criticism of those teachers who did not adopt such a format. No school was discovered in which the assessment procedures could be interpreted as lying outside the spirit of the AGI course, although inevitably some teachers exhibited greater imagination in the construction of assessment instruments than others.

E. AGI and the Board of Secondary School Studies

Previous evaluation reports of AGI, together with similar reports from all over the world, have emphasized the need for more and better in-service training for teachers. The present writer feels bound to repeat that call. It is the opinion of the evaluator that in introducing any innovative teaching strategy, the expertise of classroom teachers should be regarded as a major resource. For this reason emphasis should be placed on the provision of in-service time for teachers to meet and discuss matters of mutual interest pertaining to the innovation rather than place complete reliance on formal in-service training, although the latter may certainly have a place. The importance of such an approach was highlighted by one of the participating teachers who, in a discussion on the problems of interpreting the syllabus document, commented: "the pilot teachers negotiated the syllabus meanings between themselves".

Many of the teachers participating in the present implementation

commented warmly on the meetings they had enjoyed with others engaged in the AGI second pilot, as well as workshops under the direction of Dr B. Cox of the University of Queensland and Mr Michael Naish of the University of London Institute of Education and Director of the U.K. Geography 16 - 19 Project. A number of such meetings of direct help to AGI participants had been arranged under the auspices of the Geography Teachers' Association of Queensland. It is the evaluator's opinion that the Board of Secondary School Studies should urge those with authority in this area to give every consideration to providing assistance to the G.T.A.Q. in the efforts made by that organization to encourage better geography teaching in the State.

SOME CONCLUDING COMMENTS BY THE EVALUATOR OF THE SECOND PILOT IMPLEMENTATION

Some concluding comments by the Evaluator of the Second Pilot Implementation of AGI

Having examined data collected in the course of this evaluation, and in the light of discussions with the participating teachers, which have ranged from two to four hours duration per school, the evaluator has been most impressed with the high standard of professional integrity with which the task of interpreting the syllabus document has been approached by all concerned. In considering the future of this unit, it is the opinion of the evaluator that:

i) the second pilot implementation of AGI in all the schools visited reflected the spirit and purpose of the syllabus document.

ii) the implementations of AGI in these schools have resulted in courses for senior students at least as valuable to them as other senior units being followed, and in most cases of much greater value.

The inconsistencies which still exist in the syllabus document have not caused major problems for those engaged in the second pilot implementation. One reason for this may have been the relatively high levels of personal contact between the teachers which have been possible. However, the document as currently published would benefit from some general simplification and clarification, and it is the opinion of the evaluator that this could be most conveniently achieved by a small sub-committee convened from amongst those teachers who have undertaken the second pilot implementation.

The syllabus document refers to many different types of inquiry procedure, and the evaluator considers that at one level these may be seen as lying along a continuum from closely directed activity-learning to completely undirected student centred investigations. The teachers who participated in the second pilot implementation may also be seen as lying along a similar continuum of professional development. As experience in the use of inquiry in geography teaching increases, it may be expected that teachers will adopt classroom techniques lying further along the inquiry continuum. However, it is the evaluator's opinion that student attitudes and abilities and the circumstances of particular schools also exert an influence on movement along this continuum, and that this should be taken into consideration by the State and Regional Review Panels in their examination of future AGI work programme submissions if or when AGI is approved by the Board for general implementation.

In the trial evaluation of the AGI syllabus document, Bartlett (page 9) referred to a perception amongst 'several persons' that 'there was one model of inquiry viz. that presented in the schema in the original syllabus. The evaluator detected amongst those participating in this second pilot a feeling that, despite the considerable breadth of inquiry methodologies mentioned in the revised (1984) syllabus document, what is described as the 'scientific method' represents the true intention of the syllabus. While this perception rarely seemed to influence the approaches adopted, it did seem to cause some concern to the teachers, especially since the syllabus document implies that the introductory unit of the semester should be explicitly concerned with teaching 'inquiry methodology'. While not wishing to introduce debate here into the nature of inquiry and scientific method, the evaluator offers the following two

quotations which may explicate his own views on the issue of appropriate methodologies for social sciences:

> Konrad Roentgen - Nobel prize winner, 1901, when asked how he first thought of X-Rays:
> "I didn't think first, I experimented"
>
> G. C. Homans (1962) in Sentiments and Activities:
> "People who write about methodology often forget that it is a matter of strategy, not of morals. There are neither good nor bad methods, but only methods that are more or less effective under particular circumstances in reaching objectives on the way to a distant goal."

This latter quotation leads on to a comment on the choice of topics appropriate for study in AGI. The evidence of the twelve case studies in this report suggests that the most effective topics have been those which complied with the following basic criteria:

i) they were perceived by students to be either of current concern to the community at large or of relevance to the lives of the students as individuals either now or in the future;
ii) they were chosen either by the students or by the teacher in close consultation with the students concerned;
iii) they were clearly phrased as questions to which an answer could be sought, and were subdivided according to the key questions of geography;
iv) they were not 'taught' elsewhere in the school geography programmes;
v) they were topics in which the teacher had both some personal expertise and some personal enthusiasm;

Assessment instruments should be wide ranging in their approach and should reflect the ethos of the syllabus document. Of particular benefit in this regard are:

i) The independent research assignment, especially when students are encouraged towards an awareness of the processes of writing for a specified audience. (As students currently being trained in process writing in the primary schools move through to the secondary schools, it may be hoped that the quality of such reports will improve.)
ii) Examinations based on data-response questions. These may range from the short response to specific data forms to simulations developed from public inquiries into issues of current concern.
iii) Audio-visual presentations in which students are required to address an audience of their peers with a view to explaining their own viewpoint.

GENERAL ADVICE TO PRINCIPALS AND TEACHERS CONCERNING THE IMPLEMENTATION OF SENIOR GEOGRAPHY UNIT IIIB: AUSTRALIAN GEOGRAPHICAL INQUIRIES

General Advice to Principals and Teachers from the Evaluation Committee for future implementations of this unit

1. Construction of work programmes

Schools are encouraged to be flexible and creative in the selection of topics for study. The choice of topics should be made in the context of the examples in the other semesters in the senior geography programme in order that students may receive a broad foundation in Australian geography. Syllabus advice on criteria for the selection of topics should be noted, as should the need for studies at local, regional and national scales.

2. Student involvement

This semester unit provides scope for student-teacher negotiation in the selection of topics and examples for investigation. Trial schools which took advantage of this scope were particularly successful in implementing the syllabus. However, the responsibility for maintaining balance in the work programme remains with teachers.

3. Emphasis on key questions

In the development of the work programme, schools should be mindful of the value of phrasing the title of each topic/unit as a question. Attention is also drawn to the desireability of structuring inquiries around the key questions of geography as outlined in the Introduction to the Years 11 and 12 Syllabus document. Schools are reminded of the particular value of those key questions which promote inquiry into the impact and consequences of patterns and processes, and the evaluation of various alternatives in environmental decision making.

4. Structuring inquiry learning

Trial schools have found value in moving from inquiries structured by the teacher early in the semester towards inquiries in which the students are encouraged to ask questions, gather resources and select methods of analysis and presentation.

5. Resources

A wide variety of types of resources should be studied by students in each inquiry. There is much value in schools selecting the broad areas for inquiry early in order to permit the collection of resources. While students should be encouraged to seek resources for themselves, especially for individual inquiries, all students should be able to succeed according to their abilities by using the resources available in the school.

6. Planning an assessment programme

Assessment programmes should contain instruments and items which reflect a balanced assessment of congent, skill and process objectives. Trial schools have found data-response and decision making exercises particularly valuable in achieving this balance.

THE CASE STUDY REPORTS

CASE STUDY REPORTS

Thirteen schools were approved for the second pilot implementation of AGI. While the early stages of the evaluation strategy were completed by all the schools, the teacher reponsible for AGI in one of the schools delayed responding to the evaluator's request for final discussions and has apparently left the school for an overseas destination.

Notes to assist in reading the case study reports

Report structure

The reports on each of the twelve schools presented here are, as far as is practicable, structured in the same way.

Evidence from the school work programme, the students' responses to the questionnaire and the teachers' comments as made during personal discussions with the evaluator are generally presented together to assist the reader to form a complete picture of the AGI course at each school.

Student comments

Since much of the evidence was collected in the form of students' written comments, a number of these are reproduced in support of the generalizations made by the writer. However, since their reproduction adds considerably to the length of the document, some readers may wish to omit the students' comments and to assist in such a reading strategy, all comments from students have been preceded by an asterix (*).

In deciding to present the students' comments, the writer was faced with the problem of how to select comments and the extent to which these should be edited. Inevitably, several students in each class made very similar comments. In this case, one comment was selected as representing all students with similar perceptions. Once the decision had been made to include the comments of a particular student, the writer felt that the true flavour of that student's opinion could only be transmitted to the reader by reproducing the whole of that student's comment exactly as presented in the student evaluation response booklet.

Graphic presentation of data

The survey data portrayed here in graphic form may be considered by some to be somewhat unorthodox in their presentation. However, the availability of a convenient graphics computer program which was able to produce bar charts with ease was taken as being sufficient justification for not undertaking the much greater task of manually preparing the 72 sets of data as more conventional graphics. Explanations and legends for each of the types of graphic are presented on the following page and a second copy has been bound into the back of this document. It is suggested that the reader may like to remove the end copy to assist in the interpretation of each case study. For those who prefer not to do this, salient points from each graphic have been incorporated into the text.

Validation by the participating teachers

The case study reports which follow have all been individually presented in draft form to the teachers responsible for the AGI implementation in each school.

The teachers drew attention to any minor inaccuracies or ambiguities they discovered and these have subsequently been corrected. With such changes made, all the teachers but one have confirmed that, in their opinions, the reports present a fair and accurate interpretation of the AGI implementation during the semester under investigation.

In the one case where the teacher expressed some disquiet over the nature of the report, further discussion revealed that this teacher was unaware of the distinction drawn by the Board between trial and pilot implementations and the methods of evaluation deemed appropriate for each. However, in deference to this person, the report has been amended to take these opinions into account as far as was felt to be practicable and in the context of the document as a whole.

EXPLANATIONS AND LEGENDS OF THE GRAPHICS IN THE CASE STUDIES

Student responses to the 20 inquiry types

1. The significance of the bars

(a) Student perceptions of their experiences of the inquiry types

The heights of the bars represent mean student ratings for the frequency with which they considered that they had experienced each type of inquiry during their AGI course. A student response of "10" signifies that the student believes that a particular type of inquiry has not been experienced at all during the AGI course. A response of "50" signifies that the type of inquiry has been undertaken a great deal during the course.

(b) Student perceptions of the value of each of the inquiry types

The heights of the bars represent mean student ratings for their perception of the value of each type of inquiry procedure. A student response of "50" signifies that the student regards a particular type of inquiry as of great value. A student response of "10" signifies that the type of inquiry is regarded as of no value to the student. An empty bar signifies that fewer than half the students in the teaching group responded to the question.

2. The legend to the inquiry types

A An inquiry into a specific problem
B An inquiry into an issue of wide applicability
C Creating a new or imaginative approach to a problem
D An inquiry to examine beauty, goodness or worth
E An inquiry designed to help student to clarify their own perceptions
F Inquiries based on statistical manipulations
G Inquiries based on the use of scientific equipment
H Inquiries based on investigations in the field
I Inquiries based on library research
J Inquiries into problems chosen by the teacher
K Inquiries into problems selected by students as individuals
L Inquiries into a problem selected by students from a list provided
M Inquiries into problems selected by the class as a whole
N Inquiries which are strongly structured by the teacher
O Inquiries in which teacher's role is to provide help when asked
P Inquiries in which teacher is only present to keep order
Q Inquiries in which all resources are provided by the teacher
R Inquiries in which students are expected to find their own resources
S Inquiries in which the students work alone to produce a final report
T Inquiries in which students work in groups to produce a group report

Student response to potential resources and data presentation modes

1. The significance of the bars

(a) Student perceptions of the frequency with which resources were used

The height of the bars signifies the modal value of student responses when asked about the frequency with which they used the resources. The figures 10 to 50 signify that specific resources were used as follows:

10. Not used at all this semester
20. Used very little this semester
30. Used sometimes this semester
40. Used quite a lot this semester
50. Of overwhelming importance in work this semester

(b) Student perceptions of the value of each resource to their work

The height of the bars signifies the modal value of student responses when asked to evaluate the contribution of each resource to their work. The figures 10 to 50 signify responses as follows:

10. Extremely useful in helping with my inquiries this semester
20. Very useful in helping with my inquiries this semester
30. Quite useful in helping with my inquiries this semester
40. Only slightly useful in helping with my inquiries this semester
50. This resource was of no real use in helping with my inquiries

2. Legend to the resources

A School level text books
B College level text books
C Magazine articles
D Film strips / slides
E Videos / films
F Encyclopaedias
G Photocopies provided by the teacher
H Books of statistical tables
I Atlases
J Novels and/or poems
K Handouts from industries or firms
L Government information sheets and reports
M Information sheets from Community groups
N Topographical and cadastral maps
O Audio tapes
P Field investigations
Q Visiting speakers
R Visits out of school
S Teacher-prepared worksheets
T Laboratory-type equipment

3. Legend to data presentation modes

A Photographs
B Tables of figures
C Written descriptions
D Diagrams
E Maps (atlas or topographical)
F Graphs

EXPLANATIONS AND LEGENDS OF THE GRAPHICS IN THE CASE STUDIES

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3. Legend to data presentation modes

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SCHOOL ONE

SCHOOL ONE

The teacher and the classes following AGI

The senior geography teacher at this independent girls' school has been involved in the AGI unit since its inception and has been the only teacher of geography at the school to be so involved. She has had seventeen years' experience of geography teaching, has a first degree in Commerce, a Masters degree in Social Sciences and a Graduate Diploma in Teaching with an emphasis on administration.

The Australian Geographical Inquiries unit is taught to two senior classes in Semester 2 of Grade 12. As such it follows senior units in Geomorphology, Development and Settlement. The classes involved in the year of the evaluation had 16 and 24 students respectively. Of these approximately one third had not followed geography as a subject throughout Grades 8 - 10. However, there were no institutional constraints on good students following senior geography courses.

The teacher's view of AGI

This teacher places the main emphasis in the AGI course on selecting Australian based issues which may have been omitted elsewhere in her students' curriculum. While originally the AGI course was based on a 'scientific model' of hypothesis testing, the teacher now considers that she places less emphasis on the methodological aspects of inquiry, and prefers to begin with issues of concern to her students and to encourage them to select approaches appropriate to the questions being investigated. In particular she is anxious for her students to learn methods appropriate to investigating their own values positions on the issues under discussion.

In constructing the school work programme for AGI, the teacher perceived this unit as a summative course. AGI replaced the senior unit "Man and Environment", which had been seen in the same light. The teacher saw three advantages of placing AGI in Semester 4. These were, firstly, it allows the study of current issues with strong values implications at a time when the students are at their most mature in the school; secondly, it occurs when they are most likely to have developed a degree of self discipline regarding their work patterns; and thridly, it allows them the freedom they desire to counter the lack of motivation to work often accompanies the last semester of schooling.

The topics chosen and the method of approach

The topics to be covered each year are selected by the students from a list of some 250 provided by the teacher, although students also have the opportunity of adding to the list if they so desire. The criterion for selection is the students' perceptions of the relevance of each topic. The topics are regarded as being discrete inquiries. Each class is required to select four topics which are to be investigated by all students, although not necessarily in the same way. In addition, each student is required to pursue an independent inquiry into a topic of her own choosing.

In the semester studied, the topics were:

1. Why aren't whales becoming extinct?
2. What is the outback?
3. How is the Great Barrier Reef being managed?
4. The geography of Expo. for one class and the geography of pop music for the other.

In studying, the topic of whales, a short video segment led the class to brainstorm a number of questions. From the list of questions, the class chose those which seemed to be of greatest interest to them, and from these, the teacher re-ordered a smaller number of questions to meet the requirements of geography inquiries. The basis for the study was the Project Jonah materials, together with books , videos and other materials collected by the teacher and placed in the geography room. In this way the teacher was able to provide enough resources for the students' inquiries.

In studying the Outback, the teacher initiated the inquiry by presenting the class with a number of pictures and paintings. The students' views of the topic were then elicited before their accuracy was tested using other resources. For example, students' statements that a feature of the outback is its aridity was then tested by reference to rainfall maps in an atlas. Having attempted to investigate a number of such perceptions, the students were then required to respond to the question "Can I mark the outback on a map?" and produce a map based on the various criteria which had been defined. For this study, the teacher collected materials from the school library and provided her own background information sheets and resources.

The inquiry on the Great Barrier Reef began with a series of colour slides on the reef and its management. Students were then required to formulate questions related to the information they would need to know in order to construct a reef management strategy. Once again the teacher supplied all the resources from which these questions could be answered. This study included a week long visit to Heron Island on the Great Barrier Reef, but the teacher was at pains to emphasize that students who were unable to attend the field investigations were not disadvantaged in terms of the assessment of the unit. She did, however, admit that some loss of motivation was inevitable. The investigation included a simulation role play exercise in which students suggested appropriate zoning strategies for the reef. Resources for this section were primarily the teacher's own considerable collections of materials on the Reef.

The approach to the study of Expo, undertaken by one class only, began with students suggesting a variety of questions about the event. From these questions, the teacher summarized those which were similar in intent, and listed the various aspects of the event on cards which were placed around the room. Students allocated themselves to a card of their choice and the group associated with each card was then faced with the task of formulating more specific questions on each aspect. Having formulated their questions, each group collected appropriate resources from which their particular questions could be answered, and prepared an inquiry kit. Each group of students was then required to investigate the questions posed by all the other groups using the materials provided for them. Thus every student ultimately investigated every aspect of Expo as defined by the student body as a whole.

The other class pursued a study of pop music. The initiating activity was a class discussion on how a study of pop should proceed. This led the students to suggest the twin questions of "What is geographical about the study of pop music" and "What is there about pop music which should be investigated". The study continued with investigations about the demography of Brisbane, and whether the demographic trends could be correlated with specific interests in music, preferred television programmes, interests in radio music etc. Maps were constructed, but the results proved too difficult to interpret due to the complexity of the task and the biasses which became obvious in the data collection procedures. This approach was then abandoned.

The teacher then introduced the idea of diffusion and presented her class with a number of shorter activities and games in which this idea was explored. The study was then used as the basis for a test item. Resources for this unit consisted initially of the students and their own collections of videos and magazines on pop music. To pursue the inquiry, the students were permitted to visit libraries other than that in the school, but during curriculum time. The final section on diffusion processes was resourced entirely by the teacher.

The Individual Inquiry was introduced to the students early in the semester with two clas periods being allocated for discussion and decision. Students were given the option of presenting their findings on the topic and question of their choice in one of five ways: written report, class seminar, poster, audio tape or audio-visual presentation. They were reminded that all inquiries should be based on the basic geographical questions as listed in the Queensland draft 8 - 10 geography syllabus. Students were helped in their choice of topic by the teacher presenting packs of newspaper clippings on a variety of current issues. A student who found a particular pack to her liking, was then allowed to use that pack as the basis for her study. The teacher estimated that some two-thirds of the students had selected a topic by the end of the two lessons, while a minority of students, who were ultimately less successful, were still undecided a week or so before the due date for presentation.

The teacher's perceptions of the success of these inquiries

When asked which inquiry appeared to be the most successful, the teacher selected the study of the Reef. In this study, the teacher felt that the students had learned much about reef management and potential conflicts of interest. These aspects reflected her own particular concerns, but she also admitted that the study had been pursuedto the extent that the students had begun to lose interest.

The teacher immediately identified the study of the outback as having been least successful, and attributed this to a difference in perception between teacher and students as to the main thrust of the inquiry. The students wanted to study the role of jillaroos while the teacher's intention was to obtain a definition of the outback.

The students' perceptions of the inquiry units

Figure 1.1 shows that the topics which were perceived by the students' as being most valuable to them coincide closely with the teacher's perception. However, it should be noted that the relative popularity of the Pop music / Expo inquiry is almost entirely the result of the enthusiasm of those students who studied Expo and who visited the site as part of their studies.

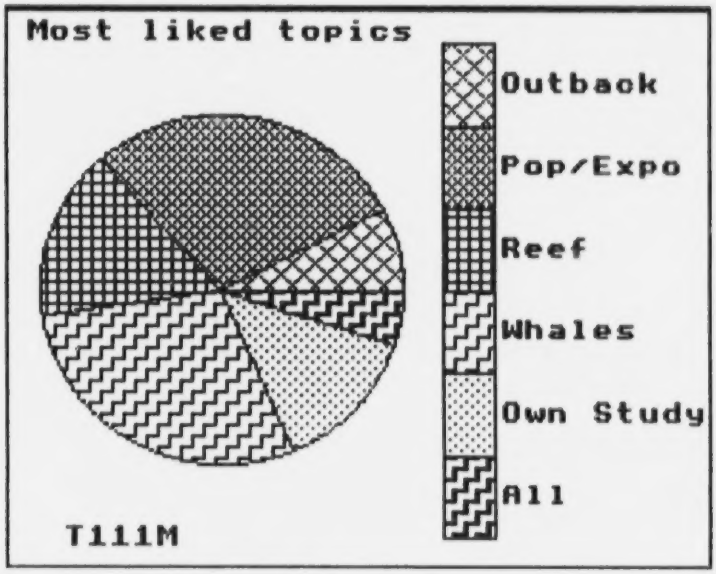

Fig.1.1 Students perceptions of the most valued topics in AGI

The comments made by students on the various topics revealed that in their eyes, the methodologies of inquiry are of less importance than the knowledge gained. Thus, comments on the whales inquiry included:

* "I didn't know anything about whales and whaling, whereas I had bits of information on the other three inquiries. I liked this topic because it was the one I knew least about."
* "I found it valuable because it was fast moving and free from interruptions. It was an interesting topic on things I did not know much about".

Similarly, about the Reef:

* "It showed and taught me about an environment I had never experienced."
* "The Reef was relevant to us seeing we live in Queensland and the Reef is one of our major attractions".
* "The background knowledge we studied before going (to Heron Island) enabled us to know what we could and couldn't do and let us know what was happening on the Reef".

The appreciation felt by students for the opportunity to learn about currrent issues was also expressed in the context of the Expo study:

* "It let us know what's going on".

* "It is something I can relate to and it will affect me when it comes around".
* "I didn't know anything about Expo".

However, for some students, the wider purpose of study was discovered:

* Whales: "This is the theme which we did in the most detail and the inquiry process fell together for me. I also enjoyed the topic and it had interesting and broad information".

While in the class which investigated pop music only two students mentioned the topic as the most valuable area of study with comments such as "because pop music is something I encounter in everyday life and now I know where it started and how it spreads", and " I could relate to it. We had music in class and it wasn't hard to learn. We found out about it spreading too."

Figure 1.2, which shows the students' perceptions of the their least valued topic, confirms the teacher's perception of the effectiveness of the outback study. It is interesting to note that a substantial minority of the students had reservations about both the Reef study and the study of whales. The teacher suggested that this was probably due to the fact that students were fundamentally more interested in the reef per se than in the management problems of the reef. She admitted that at the end of the study, she attempted to hasten progress by adopting a more traditional expository approach. Similarly, the study of whales was allowed to continue too long, to the extent that student interest began to wane.

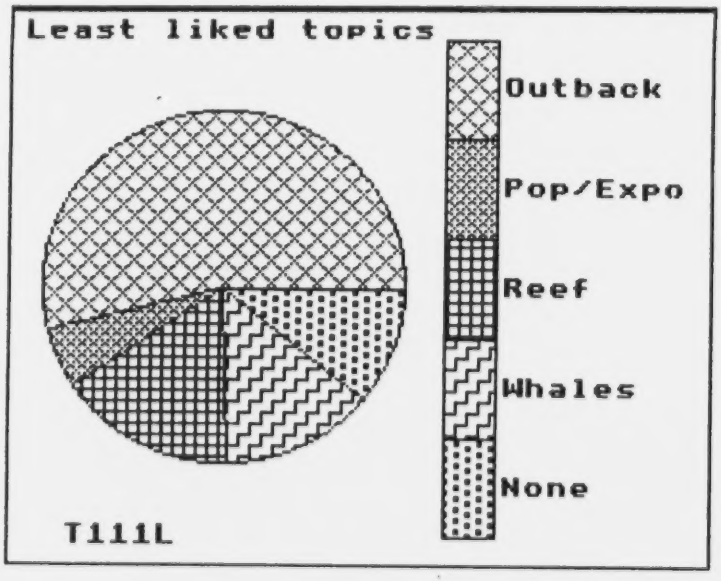

Fig. 1.2 Students perceptions of the least valued topics in AGI

Student comments on their least valued topic included:

* The Reef: "This topic was carried on far too long. I would have preferred to find our more about the reef itself than the management".
* The Reef: "I would rather have studied the natural aspects of the reef and its animals in more depth than its management".
* The Outback: "No new information. We already knew everything and so it was really just analysing what we already knew. Because of this, it was boring and uninteresting."
* The Outback: "I'm not into into beef or desert but we probably need to know something about them."
* The Outback: "Not enough things that would be of large importance to us".
* The Outback: "I don't like the outback because its really boring and everything is the same."
* Whales: "I wasn't interested in it from the start and I felt it wouldn't be useful to me later in life."
* Whales: "Moderately interesting but very unnecessary especially in our final year when we should be doing relevant studies such as Expo and the reef."
* Pop Music: "Although I found this unit by far the most enjoyable and interesting, it wasn't really very valuable to me. I don't think I would ever refer to it again. Defining what geography is didn't help me especially since we did this in the last unit in my last year."

Student perceptions of the use and value of various types of inquiry.

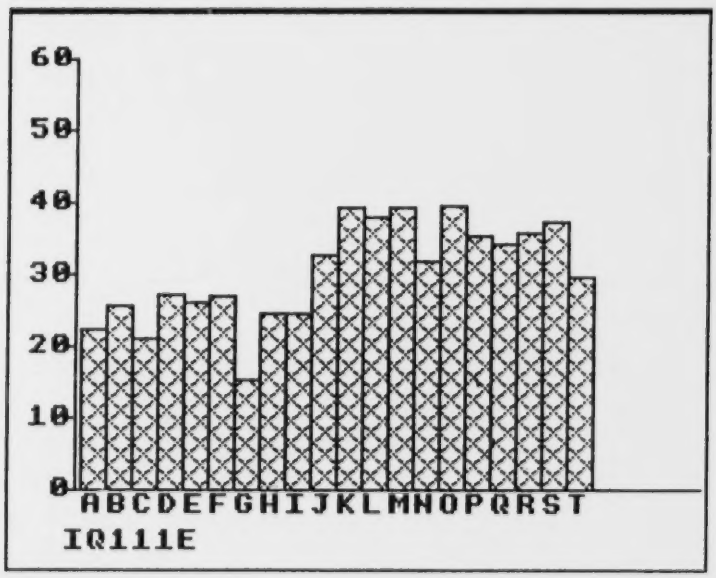

Fig. 1.3 Student perception of their experiences of inquiry types

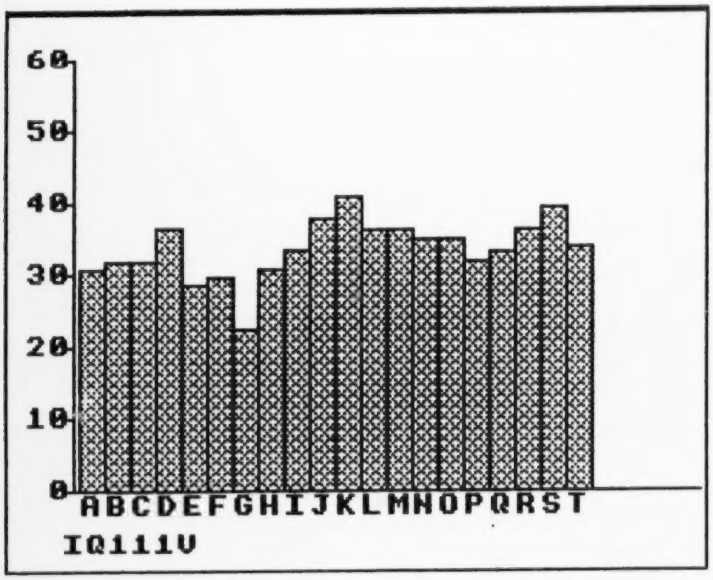

Fig. 1.4 Student perception of the value of various inquiry types

Figure 1.3 shows the students' perception of the extent to which various types of inquiry activities were undertaken in their course. The relative flatness of the graph indicates that a wide range of inquiry approaches is adopted in the teaching of the AGI course.

Figure 1.4 shows the students' perceptions of the value of the inquiry types. Once again, the students appear to value a wide range of inquiry approaches, although it should be noted that the modest valuation accorded to experimental approaches results from a very small number of respondents.

The teacher felt that the students' perceptions were an accurate reflection of their experiences, and noted with some concern the lack of experience at problem solving and the discovery of compromise solutions which had been included. The students' perceptions of the value of the various types of inquiry raised the possibility that students were responding to the course and its issues in a rather mechanistic way, merely adopting the teacher's own values stance.

The resources used in the course of the semester

Figure 1.5 shows the students' perception of the extent to which they used the various sources of information which may be found in geography classrooms. The graph shows clearly the emphasis which is placed on materials provided by the teacher. However, in view of the visit to Heron Island, neither the teacher nor the evaluator is able to explain the low emphasis accorded by the students to field work, other than the possibility that the students perceived field work to be school based and regarded the

residential and Expo visit in some other light.

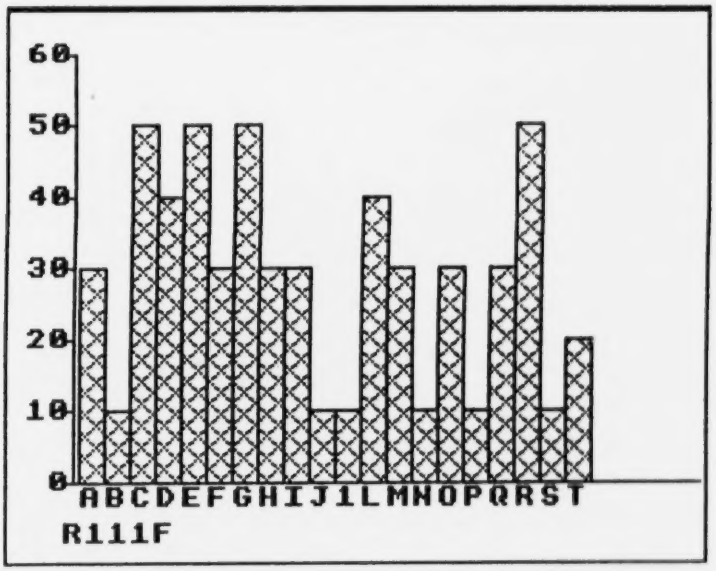

Fig. 1.5 Student perception of their use of resource materials

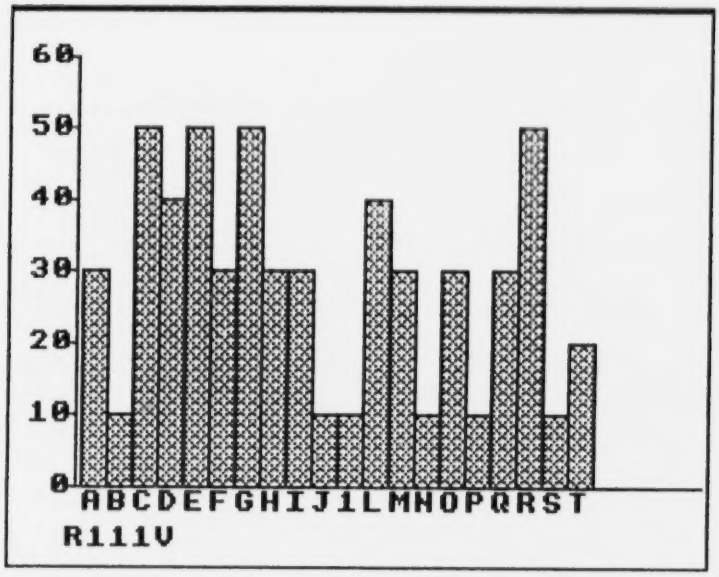

Fig. 1.6 Student perception of the value of resource materials

Figure 1.6 shows the students' valuation of these resources, and it will be noted that in general there is considerable accord between the extent to which a resource is used and the valuation it received from the students. However, it is of note that although the information provided by the teacher in photocopied form was regarded as very valuable, the worksheets which were acknowedged by students as being a major source of their activities were not regarded highly by them.

Figures 1.7 and 1.8 show the extent to which the six primary modes of data presentation in geography classrooms were used and the students valuation of them. It is significant from this information, that while the students were exposed to each of the modes with a little more emphasis on graphic forms other than photographs, they recorded reservations about the value of diagrams and graphs to their studies. It seems possible that the extra interpretation needed for use to be made of these resources makes them less valued by students.

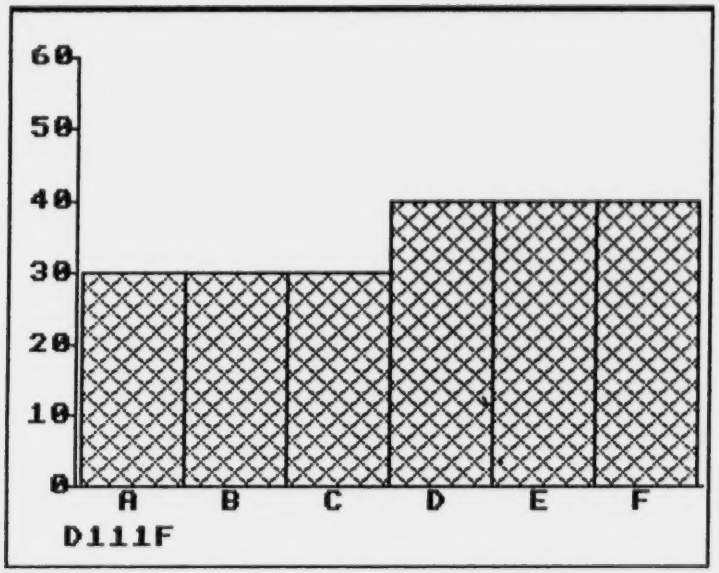

Fig. 1.7 Student perception of their use of data presentation modes

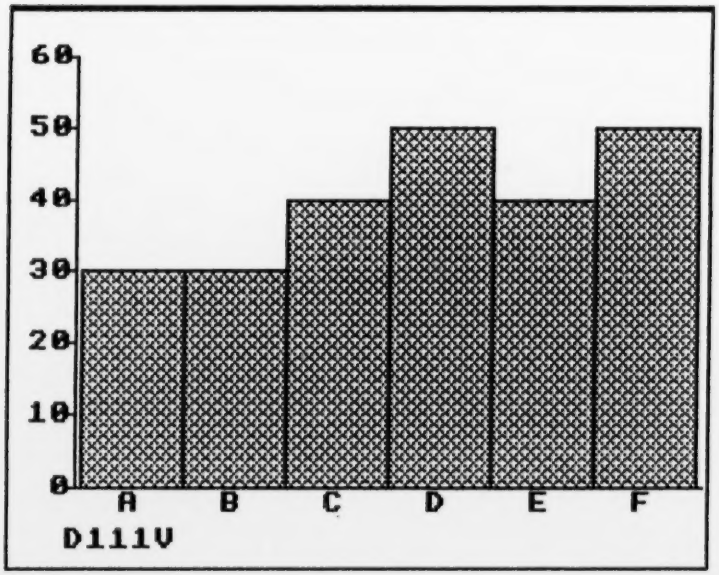

Fig. 1.8 Student perception of the value of the data presentation modes

The students' evaluation of AGI compared to their experiences of geography in Grades 8 - 10

Figure 1.9 shows that the majority of students considered that the AGI course was more valuable to them as a learning experience than their 8 - 10 geography course. Their justifications for this generally fell into three categories:
- The advantages of working alone at their own pace;
- The advantages of selecting topics of interest and of current concern;
- Preference for a more adult approach than 'chalk and talk'.

A selection of their reasons for reaching this decision is given below:
* "AGI is more relevant to our lifestyle and is good for general knowledge. 8 - 10 was really only good for ground knowledge of our environment."
* "I enjoyed the freedom we had in choosing the topics instead of the chalk and talk of 8 - 10"
* "I have enjoyed geography more this year as it has been more socially orientated than physical"
* "It was good because we had an aim or question set in the beginning and we worked towards answering that main question"
* "AGI was more interesting than 8 - 10 as we did more things besides mapping for example."

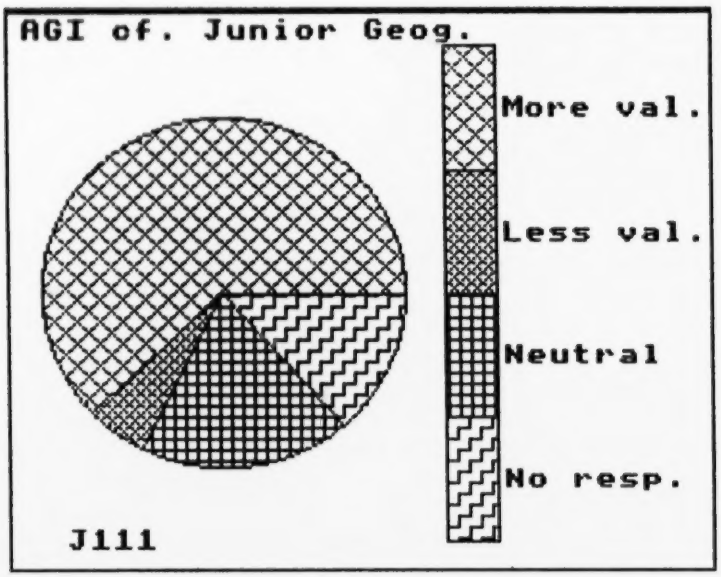

Fig.1.9 Student perception of AGI compared with Geography 8 - 10

Those students who valued AGI less than their 8 - 10 course frequently exhibited a sense of insecurity. These attitudes are reflected in the responses reproduced below:

* "I much preferred having to learn set factual information which was, I thought, interesting. The tests either showed that you knew it or you didn't. AGI tests are not direct enough."
* "I didn't really like this section as much as I did first semester. The individual inquiries were excellent and very enjoyable. However, this takes up a lot of time and disjoints the class lessons"
* "I found these lessons pretty confusing and rushed at times and because of the time given to work by self I often fell behind whereas in Year 8 it was more taught not find out yourself."

Students' comparisons of AGI with other senior geography units

Figure 1.10 shows that in addition to preferring AGI to their 8 - 10 course, students also value it more highly than their other senior units. Their reasons for this appear to be very similar to those given in respect of the 8 - 10 course. Thus comments were received such as:

* "AGI seems more to do with things we want and need to learn."
* "I enjoyed it more than previously because i) we worked with our own techniques; ii) we worked at our own speed; iii) we chose our own topics."
* "I had no interest in settlement or development. They were boring."

Once again, those who expressed reservations, generally did so on the grounds that they preferred a greater degree of guidance in their work:

* "We were left to work on our own and the class tended to fall behind in work."
* "The AGI course made you think more as you had a lot more individual work to do. I preferred doing the Grade 11 work as it was always completed and easier to learn."
* "I enjoyed Settlement and Development the most. The AGI unit was good as we could pick the majority vote. You have to have a clear inquiry process if it is to be of any value."

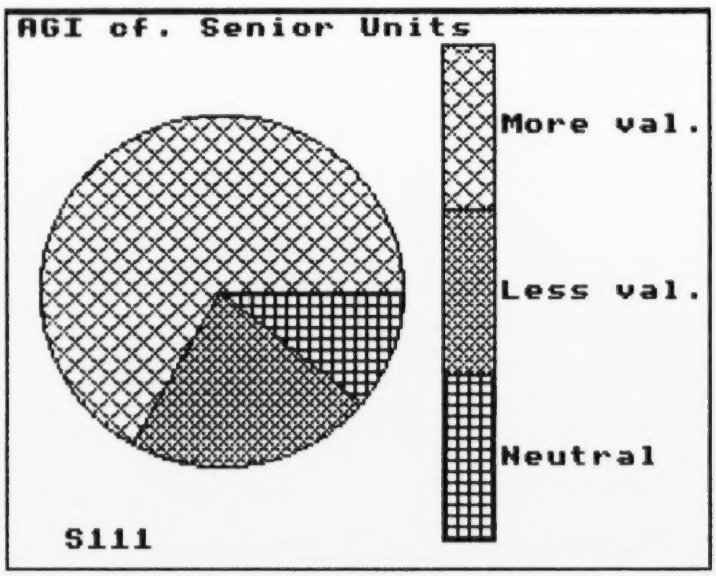

Fig. 1.10 Student perceptions of AGI compared with other senior geography units

The teacher's summary comments on AGI

The teacher felt that the syllabus document could be confusing due to the apparent contradictions to be found regarding the 'Core and Content Matrix' on page 10 and the general statements on work programme construction to be found on pages 13 and 14. While this had not caused her any problems, she feared that it could be problematic for less experienced teachers preparing an AGI course for the first time. She described the document as long winded and suggested that a syllabus should be a statement of what should be taught rather than a treatise on teaching methodologies such as 'inquiry teaching'. She commented on the changes she had observed over time: from an emphasis on the inquiry process towards an emphasis on the selection of appropriate topics. She felt that the document glosses over the fact that the entire inquiry process (the scientific model of hypothesis testing as presented in the document) need not necessarily be followed in every inquiry for the unit to be successful. Despite these comments, the teacher expressed her satisfaction with the pack of theoretical readings on inquiry based teaching which had been supplied to

her. She considered that teachers need to be encouraged to study the theory underpinning their actions.

The Assessment of AGI

The teacher described her use of a matrix of skills, inquiry processes and the selection of materials at local, regional and national scales in constructing her work programme. However, she emphasised that when, in pursuing their inquiries, students demonstrated a lack of ability in specific skills, or were unable to present logical conclusions to their arguments, teacher and student would work on these areas in greater depth. In this way, the course could be tailored to the needs of individual students. Despite this, she acknowledged that not all the process objectives stated in the work programme were necessarily assessed formally.

The assessment procedures adopted included two open-book test on factual content and a number of skills. The teacher admitted that she had increased the content element of her tests recently in the light of criticism from teaching colleagues in other schools. In addition, the students were assessed on their individual assignment (part of the grade being allocated by the student body) and a diary of the students' perceptions of their AGI unit. The teacher emphasised the importance of creating assessment items in accord with the basic principles of AGI: an emphasis on skill and process objectives, and with due regard to the need for students to be able to create an issue, investigate its implications, and draw conclusions. She also stressed the importance of creating pleasurable items.

In this school, the AGI assessments were found to correlate highly with those in other units, although there have been some 'maverick' results where individual students have performed exceptionally well in areas of particular interest. The teacher considered that many students believed that they performed less well in AGI while in fact attaining higher grades. However, she conceded that some students of middle and lower abilities may be slightly penalized by AGI.

The teacher's advice to those wishing to adopt the AGI unit

The teacher emphasized the importance of teachers pursuing their own investigations of inquiry teaching. having done this, she considered that all work programmes should have some student choice within the constraints of available resources. When asked to expand on the availability of resources, she stated that newspapers and the ability to see the geographical and educational possibilities were the two most important features of her strategy.

For this teacher, over-assessment was seen as the greatest potential problem, with an over-emphasis on fact acquisition coming second. She would urge all teachers to experiment with a wide variety of assessment instruments.

The teacher felt that there should be no attempt to pre-select students for an AGI course because, firstly, the benefits of learning to think and act independently should be available to all students, and

SCHOOL TWO

SCHOOL TWO

The teacher and the class following AGI

In this school AGI was being taught for the first time to one Grade 12 class of 25 boys and girls. The teacher has had twenty five years of experience in education, both in and out of the classroom. At the time of this investigation, he had been at this school for some eighteen months. He holds a first degree which includes geography, a Masters degree in Social Science and is a qualified teacher.

AGI is taught in Semester 2 of Grade 12 and follows units in Physical Geography, Man and Environment and Settlement. The teacher thought that only four of his students had not followed geography through Grades 8 - 10, but preferred to assume little knowledge of geography in his senior classes, beginning each course from "first principles". He was not aware of any institutional constraints within the school which might influence the type of student choosing senior geography.

The teacher's view of AGI

In response to a question concerning the major thrust of the AGI syllabus, the teacher had no hesitation in describing the inquiry process as paramount in his thinking. In deciding when in the senior course to teach AGI he had wanted to give his students the opportunity to be individual in their approaches to geography - "A do your own thing course". However, he had found that few students had the maturity to respond to this approach. The teacher contrasted AGI to the other senior units in geography which had a predetermined core. In retrospect, he considered that he would have preferred to teach AGI at the beginning of Grade 11 in order that students could have been introduced to a new style of teaching/learning which would have led into other senior units taught by inquiry methods.

The topics chosen and the methods of approach

In the semester studied, the teacher described the topics chosen as being a series of discrete inquiries. He stated "I surprised myself. I had expected to to do an integrated series. If the focus of the syllabus had been Australia, then I would have integrated my topics, but the focus is on Inquiry."

The topics studied by the class were:

1. Where do Australians live?
2. A study of any one aspect of the mining industry in Australia
3. The creation of a game on an aspect of agriculture or manufacturing in Australia
4. What are the relationships between vegetation and the physical environment?
5. What does Albany Creek need?

The first topic was taught as a class activity with the teacher directing a series of inquiry activities. The main reason for selecting this topic was that appropriate resources were known to be available within the school.

The second topic on mining was intended to be based on individual research and statistical manipulations, using resources known to be available in the school library. However, the teacher felt that the class had been allowed to "go off half cocked" since they were inadequately prepared for their task.

Their study of agriculture or manufacturing was to be presented by the students in the form of an educational game or simulation. To this end, students were instructed to investigate their own resources. (The students were presented with a number of exemplars of geographical games on which to base their own creations)

The study of the relationship between vegetation and the physical environment took the form of a field camp visit to Noosa for two days. The class following AGI was joined by a Grade 11 class following the physical geography unit "for logistical reasons". The activities of the day were teacher directed and the AGI students' reports were a compilation of the written segments of these activities.

Finally, the investigation of social issues pertaining to Albany Creek was an individual study in which the students were asked to pursue their own field work, investigate a variety of statistical sources and utilise their own personal experiences in order to reach conclusions concerning an issue of their own choosing. The teacher suggested that this aspect of the course was not allotted sufficient time for its satisfactory conclusion and was ultimately a rather rushed exercise attempted in the period of a single week.

The teacher's perception of the success of these inquiries

The teacher felt that the most successful of the inquiries was that concerning mining in Australia. It was suggested that this stemmed from the familiarity of many students with the topic, the availability of appropriate resources in the school library and the particular interest of many students in human/environmental issues. However, the game/simulation creation activity was also mentioned as having been particularly successful with those students who managed to pursue the project to its conclusion. This was estimated as having included about one third of the class.

The teacher had little hesitation in identifying the inquiry into the Australian population as having been least successful. The problems in this inquiry were felt to emanate from the inadequacy of the available resources in that they did not lend themselves to the inquiry process. Much of the inquiry, which was teacher directed, was based on statistical work which was a new experience for many of the students and which the teacher perceived them to find boring.

The students' perceptions of the inquiry units

Figure 2.1 shows that the students agreed with their teacher that the unit on mining was the most valuable to them, while the game creation unit,

about which the teacher had most doubts, was also perceived by the students to be of value to them. It is significant, however, that the unit concerned with "Social Issues", which might have been expected to have loomed large in this course, received such a small response, as did the unit devoted to field investigations. Furthermore, it should be noted that a large proportion of students declined to respond to this question.

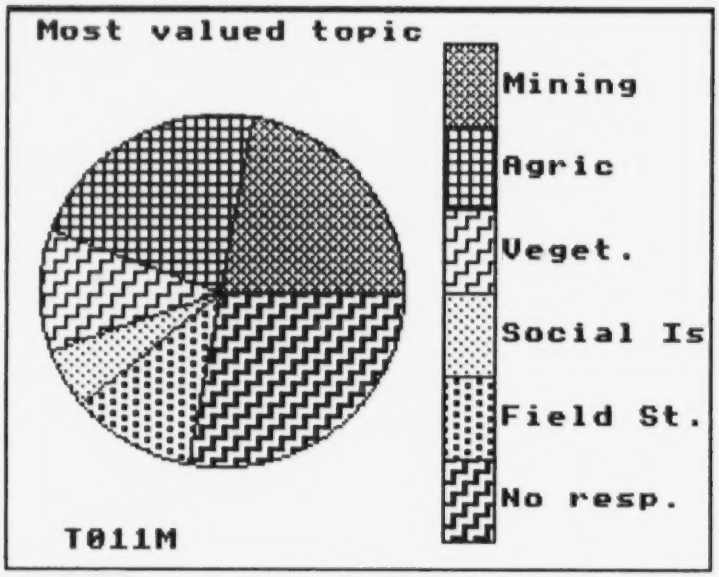

Fig.2.1 Students perceptions of the most valued topics in AGI

The comments made by the students about their most valued unit reflected their concerns that they should attain what they perceive to be useful knowledge. Also mentioned were the inherent interest and perceived relevance of the topics, together with the ease with which information could be found. Typical of the responses were:

* Agriculture game - "Interesting and relatively easy to collect information
* - "I learnt more about what the wheat industry does in Australia"
* Mining - "We had a choice of what we wanted to research"
* - "Because of the contrasting arguments for the environmentalists and the miners"
* The field investigation - "I could use it in biology as well"
* - "a much needed rest"
* - "more easily able to understand the environment and vegetation rather than just researching books for information"
* Social Issues - "they are things we are constantly confronting in everyday life

Figure 2.2 shows the students' perceptions of the topics which were

of least value to them. Once again their perceptions closely matched those of their teacher despite the fact that many students did not feel able to nominate a "least valued" unit, or contented themselves with non-specific derogatory comments.

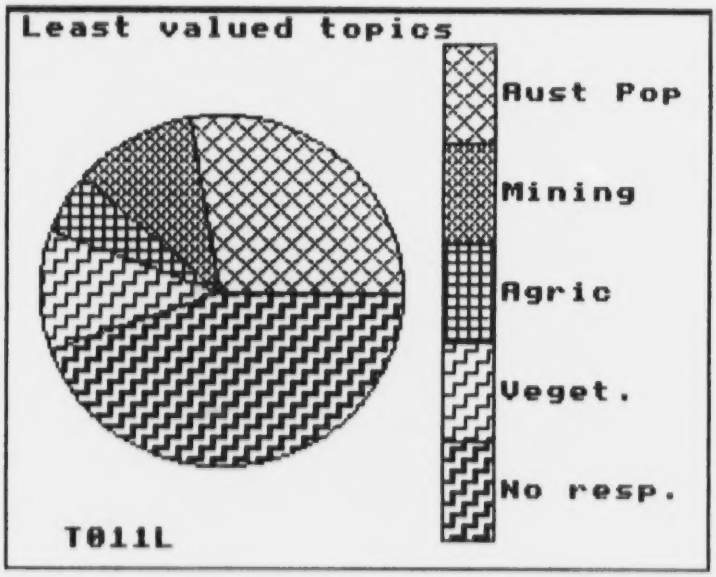

Fig.2.2 Students perceptions of the least valued topics in AGI

Students' comments on their least valued topics reflected their perceptions of the relevance and interest of the topics and the way in which each was taught. Concern was also expressed about the availability of information needed. Typical comments included:

* Population - "Boring, hard to understand the question and hard to find information
* - "Boring, the teacher did all the work for you - we did little research ourselves"
* - "All class lessons, the teacher could have made it more interesting"
* Field study - "Too much to study and learn, and it is covered in other subjects"
* - "Trees are stupid"
* Agricultural game - "The information I required was hard to come by and when I found some it was often very vague"
* Mining - "I couldn't associate with it - rather useless, although I did learn more about mining"

Student perceptions of the use and value of various types of inquiry

Figure 2.3 shows the students perceptions of the extent to which they experienced the various types of inquiry and Figure 2.4 shows their evaluations of those inquiry types.

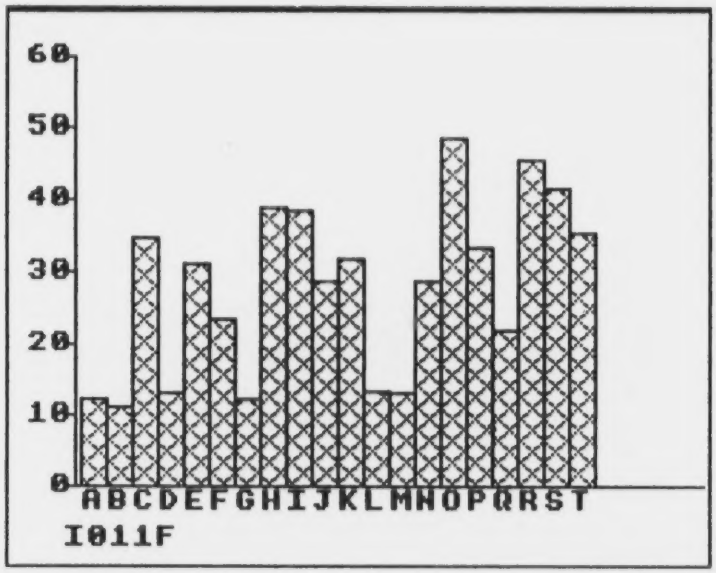

Fig.2.3 Student perception of their experiences of various inquiry types

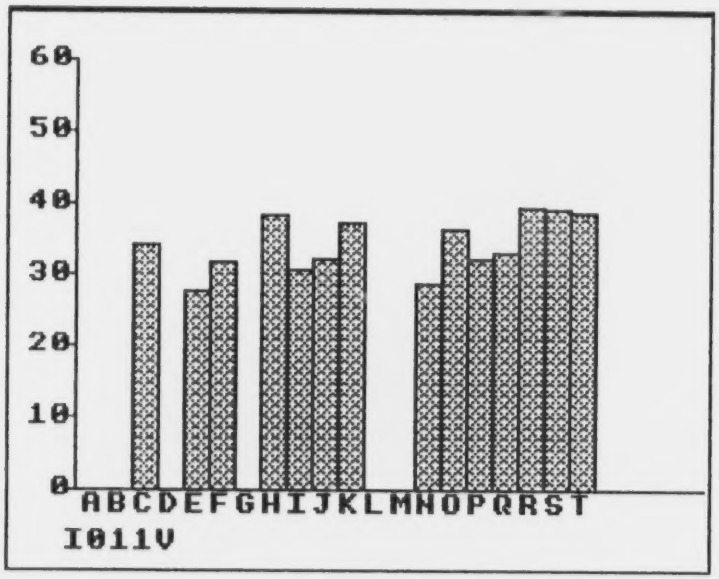

Fig.2.4 Student perception of the value of various inquiry types

Figure 2.3 suggests that students were expected to undertake much of the work on their own with little direct teacher assistance. The initial inquiry into population which was apparently taught to the whole class with a high level of teacher direction, and which was not regarded highly by either teacher or students, does not appear to have influenced the students' responses to this section of the questionaire. However, there seems to have been little attention given overall in the course to inquiries into specific issues or problem solving.

The lack of emphasis on issues or problem solving is reflected in Figure 2.4 in which students record their evaluation of the various inquiry strategies. Six types of inquiry received a non-response from more that half the students, all of which include an issue or problem component. The students were only modestly enthusiastic about all the remaining strategies, with some suggestion that their personal feelings towards topics are of less importance that "finding out" information, albeit for themselves.

The teacher did not feel it necessary to comment on these perceptions of his students other than to express the opinion that they were "fair".

The resources used in the course of the semester

Figure 2.5 shows the students' perceptions of the extent to which they used various sources of information. There appears to have been a great emphasis on videos, encyclopoedias, atlases, field investigations and teacher prepared worksheets. Figure 2.6 suggests that students valued audio-visual presentations including video highly, while regartding atlases only slightly less favourably. Field work and teacher produced worksheets were regarded as being of little value in their studies, and visiting speakers and visits out of school, while not experienced greatly, were regarded as being of considerable value. Text books of all descriptions and government information sheets were not regarded highly, while surprisingly, topographical maps do not appear to have been either used nor valued by these students.

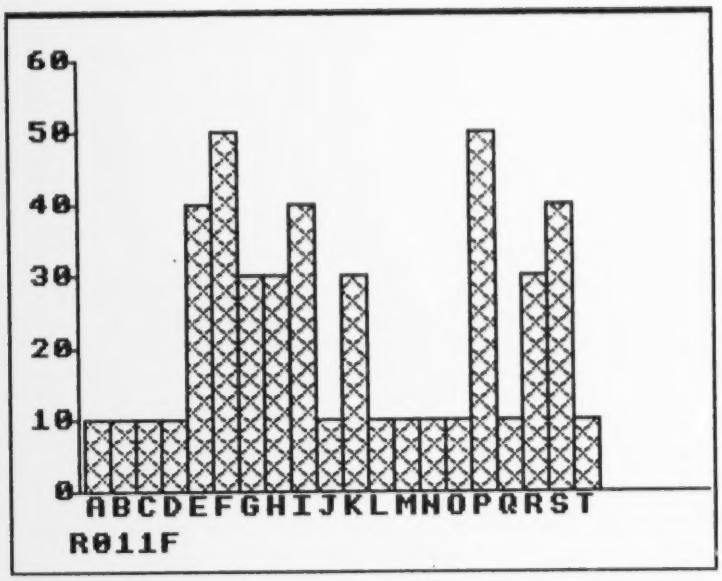

Fig.2.5 Student perception of their use of various resource materials

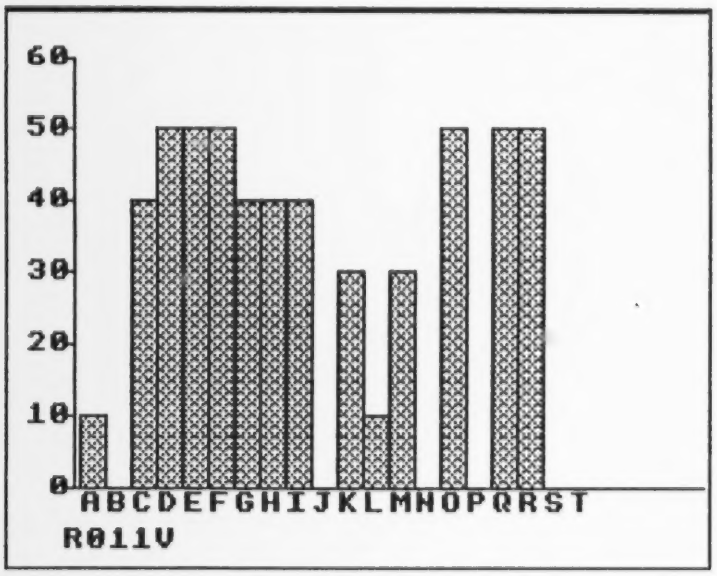

Fig.2.6 Student perception of the value of various resource materials

Figures 2.7 and 2.8 show the extent to which the six primary modes of data presentation were used and evaluated by these students.

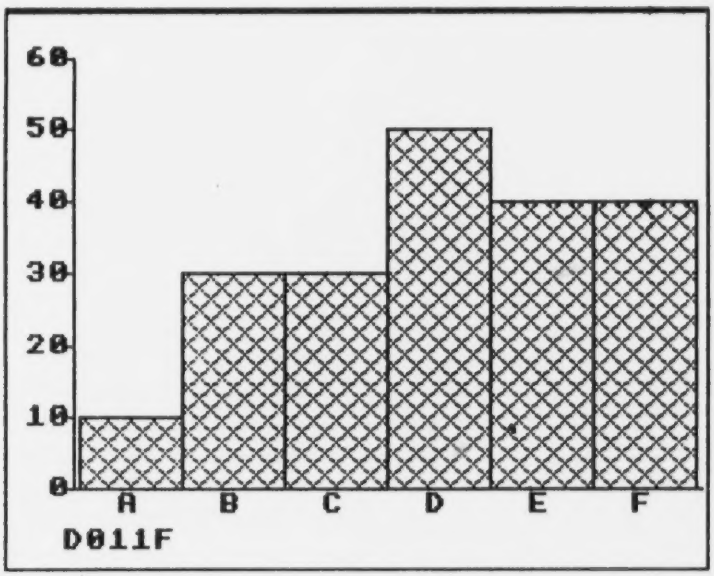

Fig.2.7 Student perception of the use of basic data presentation modes

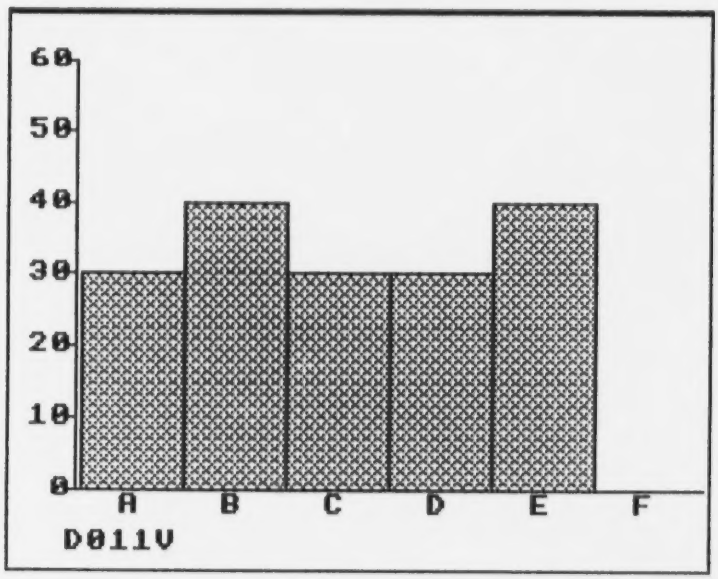

Fig.2.8 Student perception of the value of basic data presentation modes

It would appear that there was a relatively high usage of diagrams, maps and graphs, with surprisingly little use being made of photographs. However, in expressing their evaluations of these modes of data presentation, the students placed emphasis on tabular and mapped information, while regarding graphs as being of little help. It may be assumed from previous information, that the maps referred to by the students were generally presented in atlases.

The teacher was able to shed some light on the interpretation of these findings by explaining that the school was "big on encyclopaedias" as well as possessing no less than five class sets of atlases. He admitted that the school possessed few topographical maps as "we can't afford them". Diagrams in the form of transects and profiles provided by the teacher formed the basis of much of the students' work and were regarded by the teacher as "the major resource for answering questions". The teacher commented in passing that although he began the semester in the hope that the students would be fairly autonomous in their learning, he found it necessary to provide an greater proportion of the resources needed as the course continued.

The students' evaluation of AGI compared to their experiences of geography in Grades 8 - 10

Figure 2.9 shows how the students regard the AGI course when compared with geography courses in Grades 8 - 10. Only half the class responded to this question, of whom half did not study geography before entering senior classes and half declined to respond. Of the rest, a small majority decided in favour of AGI. Typical comments included:

* "AGI is more interesting, more practical and quite enjoyable"
* "AGI tests the individual's own ability which is the best way"
* "AGI is 'closer to home' geography"
* "It was very enlightening to learn more about the Australian country and environment"
* "AGI demands a lot of student input and work to find things out for themselves which I think should be done with Grade 12 students"
* "I don't like it as much as I did in Grade 8, but then I didn't like Year 8 either"
* "I did geography in Grade 8 in America and even at that stage we covered twice as much material"

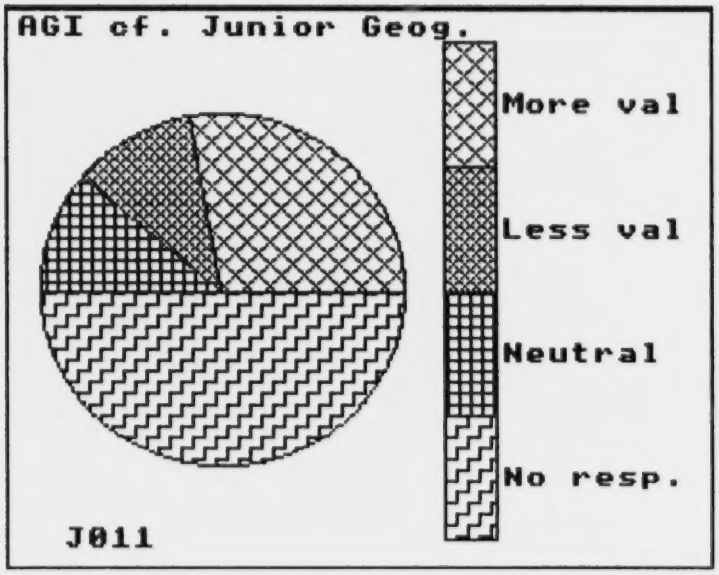

Fig. 2.9 Student perceptions of AGI compared with their 8 - 10 Geography course

Students' comparisons of AGI with other senior geography units

Figure 2.10 shows how students compare AGI with their other senior geography units. Once again, a substantial minority declined to respond to this question, although amongst those who did, AGI was regarded as being of generally greater value than the others. Those who considered AGI to be more valuable were remarkably reticent in their comments, many limiting themselves to such comments as "better but no strong feelings" or "exciting". Other comments included:

* "It gave an opportunity to research and use research materials"
* "AGI is very general. In the past we looked in detail and went right into it"
* "All senior units were found to be helpful and worthwhile"
* "The units about people were much better than the AGI or any other units we've done"
* "The work was so detailed and minuscule that for the most part it came over as irrelevant and trivial. However, we did more work this semester than we did in Semesters I, II and III combined"

The teacher commented that he adopted inquiry methods as far as possible in all senior units, and suggested that this might account for the students' perceptions of AGI. This led the teacher to question whether there is a need for AGI at all. He suggested at this stage that the teaching methodology of inquiry was really a vehicle to pursue a study of Australia.

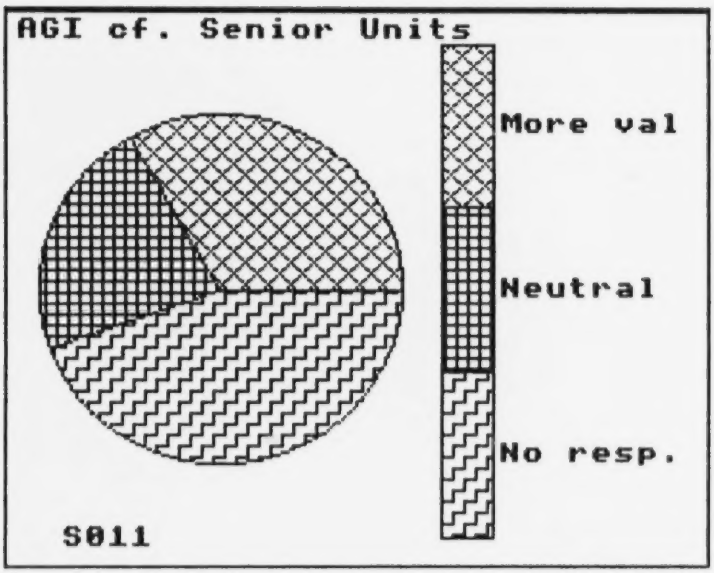

Fig. 2.10 Student perceptions of AGI compared with other senior geography units

The teacher's summary comments on AGI

When asked to comment on the syllabus definition of 'inquiry', the teacher suggested that the array of inquiry types was useful and might spark new approaches in a teacher's mind. In general, however, the syllabus was seen as a document to "flick through". This teacher did not recall having received the selection of theoretical readings on inquiry methodology in geography teaching.

The teacher did not regard the apparent contradictions in the syllabus document to be a problem since he regarded its purpose as guidance rather than prescription. However, he supported the notion of the "core" referred to in page 10 of the document, considering that such a matrix ensures a balance of scales of study is maintained. He did, however, question the extent to which the syllabus document contained too much information, and ventured the opinion that many teachers would not read the document in its entirety.

In discussing the requirement that "the full range of inquiry processes and skills should be developed", this teacher confirmed that, in his teaching, "each inquiry process stage is gone through with each topic. However, he commented that his students were "not used to following a method formula".

This teacher, while not noting any differences in the type of student who appeared to relate closely to AGI, felt that AGI appeals to different groups of students depending on the specific subject matter being covered.

He admitted to finding it difficult to take individual differences between students into account. The teacher confirmed his interest in adopting inquiry methodolgy both in other senior geography units and in junior geography classes.

Assessment of AGI

Despite the statements in the published course outline, the AGI class studied was assessed solely on the written reports presented at the conclusion of the first three inquiry topics. In the case of the agricultural game creation activity, the assessment was supplemented by the notes made by the teacher on his observations of the groups working. There was no examination, and students were provided with "Assessment Criteria Sheets" on which content, skill and process objectives were specified and given equal weighting. The teacher had not experienced any problems in adopting this assessment strategy and considered that the AGI assessments correlated closely with those for other senior geography units.

The teacher's advice to those wishing to adopt the AGI unit

The teacher considered that the AGI unit should be made available for general implementation. Despite his earlier comments about the need for AGI, he stated with approval that the AGI unit placed emphasis on the inquiry method, "removed the divine right of content" and encouraged teachers to consider their assessment strategies in more depth.

In drafting work programmes and selecting topics, this teacher suggested that newcomers should make a decision as to whether they wished to use the matrix on page 10 of the syllabus document or the more general statements on pages 13 and 14 and then proceed on the basis of the resources available, and the interests of the teacher and the students. On selecting resources, he recommended the collection of "anything with 'Australia' in the title or on the contents page", as well the use of atlases and encyclopaedias.

The assessment of AGI should, according to this teacher, begin with the clear statement of objectives and criteria for assessment, and continue with instruments designed to test attainment of these objectives regardless of the topic content.

This teacher did not consider that specific students should be selected for the AGI course, but observed that students following the course should possess a degree of independence and have had experience of inquiry work.

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SCHOOL THREE

SCHOOL THREE

The teacher and the classes following AGI

This State High School has been involved with the AGI syllabus development for at least five years. The syllabus is currently being taught to two classes, each of twenty-three students, by the subject master who is a History/Geography graduate with a post graduate diploma of teaching and five years teaching experience. This teacher has taught AGI for the past three years.

AGI is taught as the final senior geography unit and follows Geomorphology, Development and Man and the Environment. In this school most of those students opting for senior geography had studied the subject in Grades 8 - 10. However, in the option system geography appears on the same "line" as chemistry and biology, with the result that students wishing to specialize in maths/science tend to be directed away from geography. The teacher commented that an unnaturally high proportion of students with limited and very limited ability are to be found in senior geography classes.

The teacher's view of AGI

For this teacher, AGI is primarily a course designed to encourage students in inquiry methodology, with geographical study and the Australian content of lesser importance. He described inquiry as "looking at a problem and seeking an answer". However, he emphasised that many Australian examples are introduced into the other geography units in the school, while inquiry methodology is also integrated throughout all geography courses. The difference lies in that in AGI the onus for work rests more strongly with the students themselves.

AGI is taught at the end of Grade 12 when the students have reached their most mature and it was felt that they could then best handle the responsibility for their own work. Other senior units are more teacher directed. Since the ability of the students following senior geography courses is perceived to be falling, this is felt to have been a good decision.

The topics chosen and the methods of approach

The AGI work programme is arranged as a series of discrete inquiries. When AGI was introduced into the school, each of three teachers designed a unit of inquiry in an area of their interest. Now the course consists of an introductory and three major inquiries, of which one is an independent inquiry by students. The topics covered were:

1. Is Queensland really the sunshine state?
2. Is Australia "the lucky country"?
3. Is Australia free from major natural hazards and disasters?
4. Independent inquiry

The introductory unit "Is Queensland really the Sunshine State?" was intended to illustrate the basic ideas of inquiry and was structured insofar as students were required to seek only one answer. Much of the

work involved statistical and map interpretations.

The second and third inquiries were also closely structured with a number of questions presented to the students. These questions generally began with the word "what..." rather than the series of key geographical questions as outlined in the Qld. 8 - 10 syllabus document. However, both the fact that the topic titles are all expressed as questions, and the precision of the statements of process objectives in the school's work programme, reveals that the inquiries were more than data collection exercises. The inquiry into "Australia: the lucky country" included a day visit to a hostel for Aborigines. The teacher commented that many of the students were distressed by this visit and left before the end of the day.

In all the teacher-led inquiries, much information was provided for the students to work on. The teacher felt that it would be quite possible for a student to complete all the inquiries, except the individual study, using only the information provided. This was seen as being a great advantage since many students had become distressed during their independent studies when written requests for information met with no response.

The independent study was pursued throughout the greater part of the semester and involved either a written or oral presentation of findings in response to a question created by the student in consultation with the teacher.

The teacher's perception of the success of these inquiries

The teacher considered that the unit on natural hazards was the most successful, although acknowledging that all units had both strengths and weaknesses. The success of this unit was attributed to the fact that every student had had personal experience of one type of natural hazard or another, together with the teacher's personal interest in the area. The students were also perceived to find interest in civic awareness which was a new concept for most.

The least successful unit was considered to be the introductory unit on Queensland. It was found that students lacked skills in map and statistical interpretation and were unable to make comparisons. The successful students in this unit had to be told how to analyse maps and tables, and led to correct interpretations. As will become clear in the next section of this report, it also appears that there was some conflation of interpretations on the question between the teacher and students, some of the latter taking a less climatological view of the Sunshine State.

The students' perceptions of the inquiry units

Figure 3.1 confirms the teacher's view that the Natural Hazards unit was the most successful with the students.

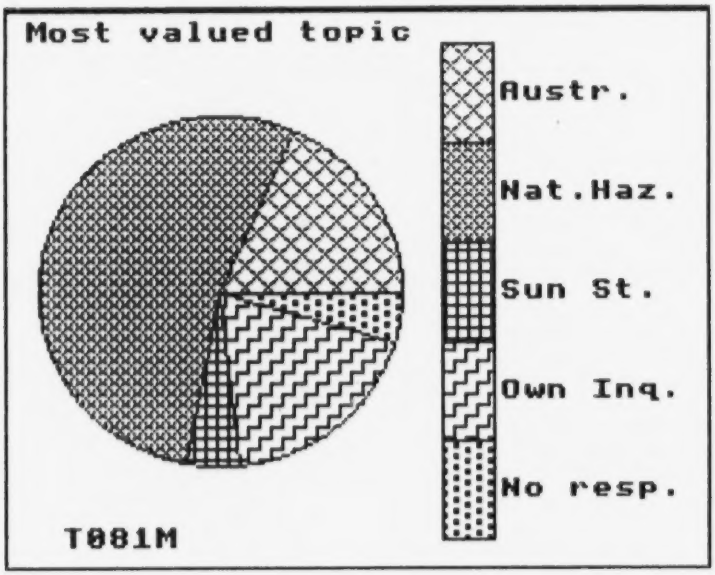

Fig.3.1 Students perceptions of the most valued topics in AGI

Student comments on their most valued topic reflect their primary interest in acquiring information which they feel is relevant to their lives. Most comments about the independent study referred to the information which had been discovered. Typical comments on the other units included:

* Natural Hazards - " It opened my eyes to some of the dangers involved in living which I thought would never affect me. I now realize that quite possibly they will."
* - "It teaches you about the importance of being ready for a natural disaster and ways in which you can help and prevent disasters from happening."
* - "It made me realize the horrors of some of Australia's natural disasters which I didn't previously know or care about."
* Lucky country - "I found a lot about Australia that I didn't know. Not the sort of thing you find in a text book - underprivileged and poor people. It was an excellent field study."
* - "You find out a lot about Australia and the way it really is which is different to what I thought it was like."
* - "It showed me how good and prosperous Australia is."

Figure 3.2 shows the students' nominations for the least valuable unit. Again the teacher's view about the inquiry into the Sunshine State is supported by his students.

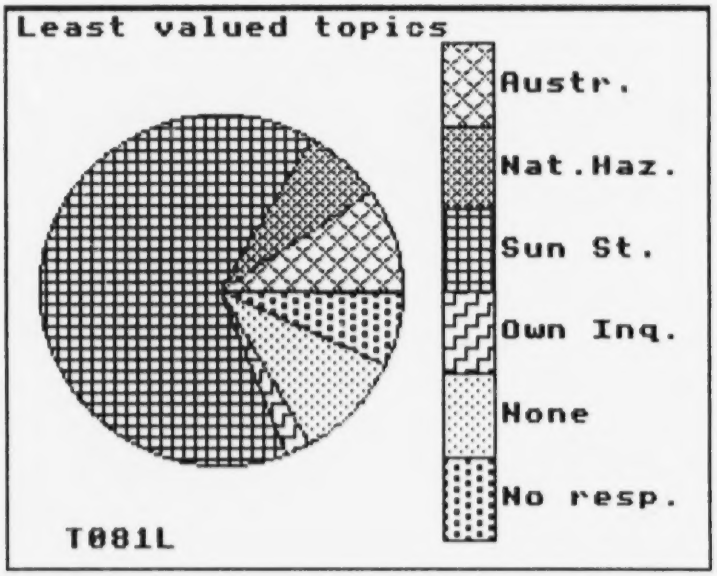

Fig.3.2 Students' perceptions of the least valued topics in AGI

The students' comments on this unit reveal that the interpretations of the question varied widely between students.

* "I know the answer - Qld. is generally taken as the sunshine state."
* "I thought we were the sunshine state because of the night life, sunshine, golden beaches etc., but our teacher wanted taxes, unemployment, income, housing etc. "
* "Not relevant - good for making you give thought and come to conclusions but had no real benefit."
* "Not enough relevant data and no real answer to the question."
* "No real value - can't change it, can't prove it."
* "I think Queensland is nice and I don't want people disagreeing or agreeing about something as beautiful as Queensland."
* "We already new (sic) how good the weather is."
* "I hated it. No right answers and information extremely hard to find."

For the rest, most comments focussed on the students' concerns for relevant knowledge and ease of access of information, although sheer complexity was found to be a problem by some.

* Lucky country - "I didn't like this because there was so many aspects of lucky to cover."
* - "Little information, hard to evaluate and reach a conclusion."

Students' perceptions of the use and value of various types of inquiry

Figure 3.3 shows the students' perceptions of the extent to which they experienced the various types of inquiry and Figure 3.4 shows their evaluations of those inquiry types.

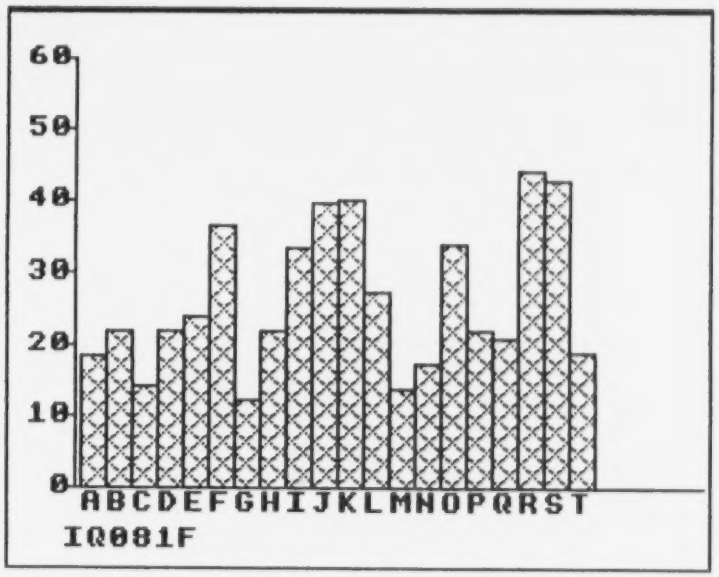

Fig.3.3Student perception of their experiences of various inquiry types

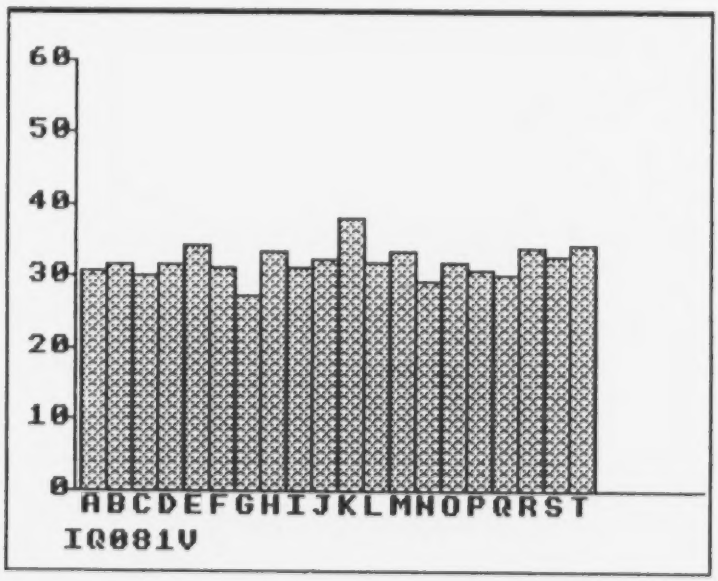

Fig.3.4 Student perception of the value of various inquiry types

Figure 3.3 reveals that students felt that they had been exposed to statistical manipulations rather more than to other forms of inquiry. Their questions were either teacher created or individually created in almost equal measure. Much work was done individually in libraries and elsewhere. It appears, however, that little imaginative or creative work was attempted, nor was an experimental approach to scientific inquiry included in the course. Despite the teacher's opinion, students still felt that sources of information other than those provided were needed.

Figure 3.4 suggests that all the inquiry types to which the students were exposed were equally valued, or would have been regarded as of equal value had they received greater attention. All responses were positive with the exception of those to "experimentation" and complete teacher direction, with individual inquiry being seen as of greater than average value.

In considering these findings, the teacher offered the interpretation that students placed more emphasis on information collecting than on finding solutions in their inquiries. He considered that his students thought that if they could find the information, that the answer to the question must surely follow.

The resources used in the course of the semester

Figure 3.5 shows the students' perceptions of the extent to which they used various sources of information. Statistical tables and teacher prepared worksheets appear to have loomed large, with text books, audio-visual materials and photocopies of great importance.

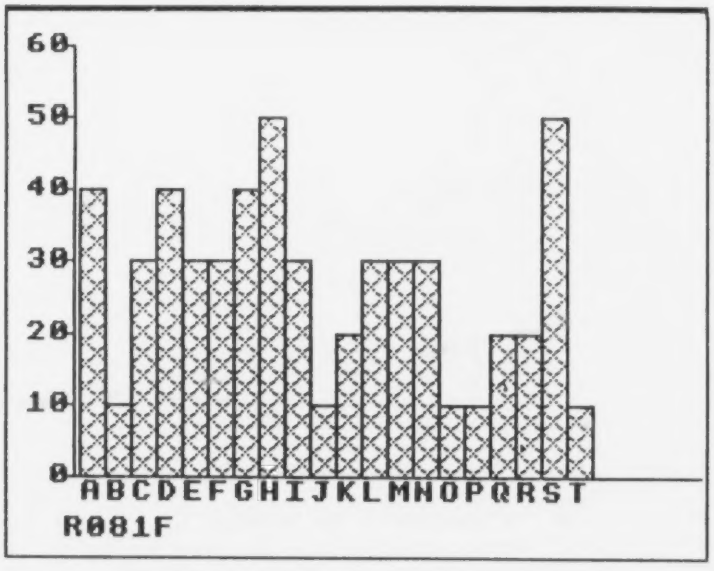

Fig.3.5 Student perception of their use of various resource materials

Figure 3.6 shows the students' evaluations of these resources. The materials provided by the teacher were considered to be of particular value, although the worksheets were not valued at all. The teacher was already aware of his students' views on the worksheets. Despite the teacher's reservations about the visit to the hostel, that day would appear to have been valued by the students. It is interesting that the audiovisual materials were regarded as of less value than might have been expected.

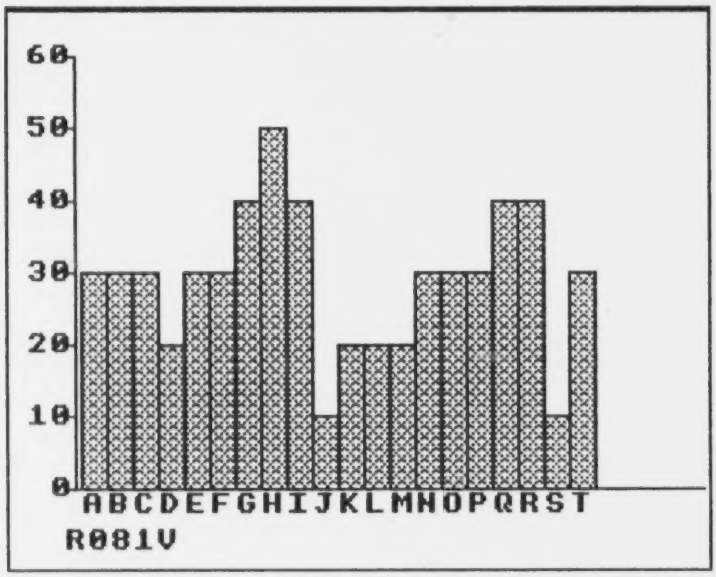

Fig.3.6 Student perception of the value of various resource materials

Figures 3.7 and 3.8 show how the students' perceived the relative contributions of the basic modes of data presentation to their course, and their evaluations of these modes. Written descriptions and diagrams appear to have been the main source of information, with photographs occupying a very lowly position. However, in their evaluations, the students felt that photographs and graphs had made the greatest contributions to their studies, while statistics and diagrams were of least value.

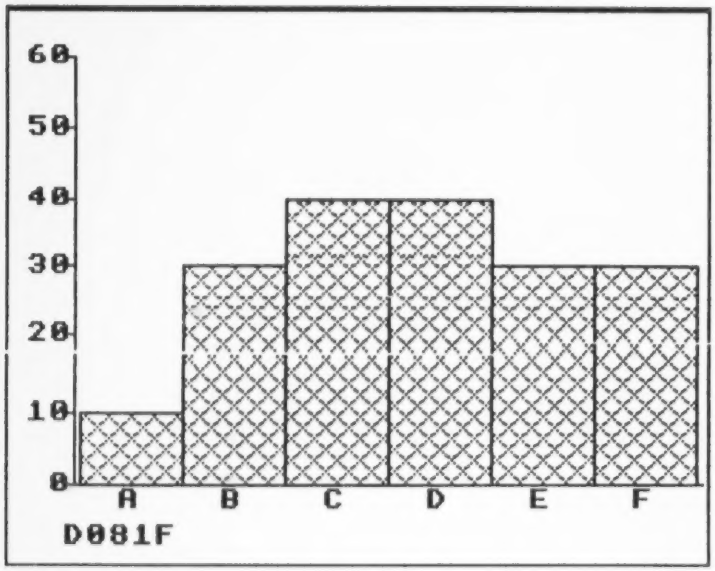

Fig.3.7 Student perception of the use of basic data presentation modes

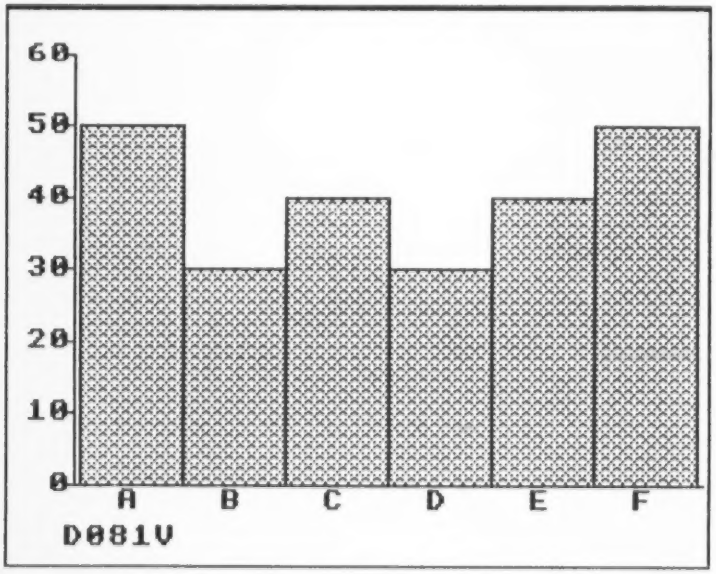

Fig.3.8 Student perception of the value of basic data presentation modes

The students' evaluation of AGI compared with their experiences of geography in Grades 8 - 10

Figure 3.9 shows how the students regard the AGI course when compared with their 8 - 10 geography courses. The majority of the students regarded AGI as being of greater value, and of the rest, a majority regarded it as no less valuable.

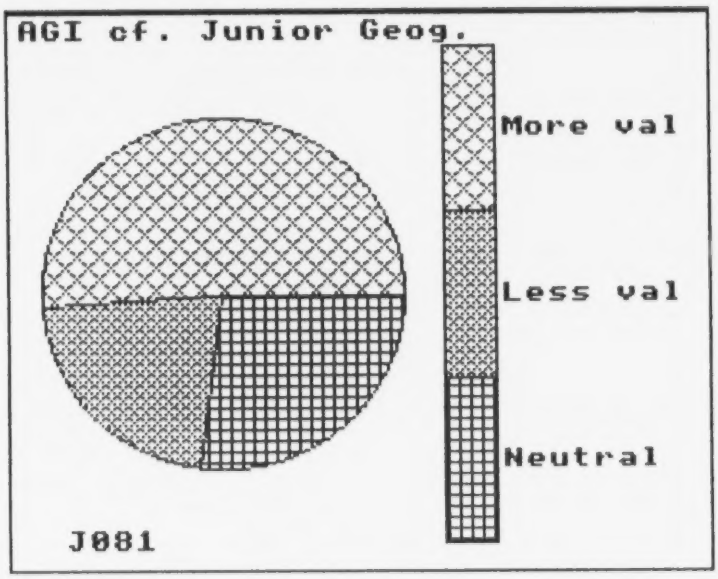

Fig.3.9 Student perceptions of AGI compared with Geography 8 - 10

These students presented a very wide range of justifications for their answers to this question and to do full justice to their responses would involve their reproduction in full. The comments printed below may not be regarded as representative, but have been selected more for the advice they may have to offer for the future.

* "It involved great amounts of evaluation and thought and increased the capacity for one's self to evaluate a problem."
* "I could actually see what I was getting out of the studies, but they involved a lot of complex and hard work."
* "More interesting - away from the conventional, boring, geography. You, as an individual could voice an opinion."
* "Interesting, but after a time it began to become boring. I would prefer to have assignment titles given to us, not having to choose our own."
* "It is your own work and opinions, with facts and figures to prove it."
* "Other types of geographical work are far more beneficial. AGI takes up far too much time and leaves no time for other subjects."
* "8 - 10 was more interesting. You learnt about geography instead of all this methodological work.
* "Interesting and challenging. With some teacher input it would be excellent."

* "Interesting, but it really won't be of any help to us when we leave, whereas learning about our own country in terms of what is where would be of some help."
* "I found AGI more interesting than in the past - my marks indicate that I like it more because they're better."

Students' comparisons of AGI with other senior geography units

Figure 3.10 shows how students compare AGI with their other senior units. Once again, the students found in favour of AGI, with some suggestion of comparisons even more favourable than when compared with Geography 8 - 10.

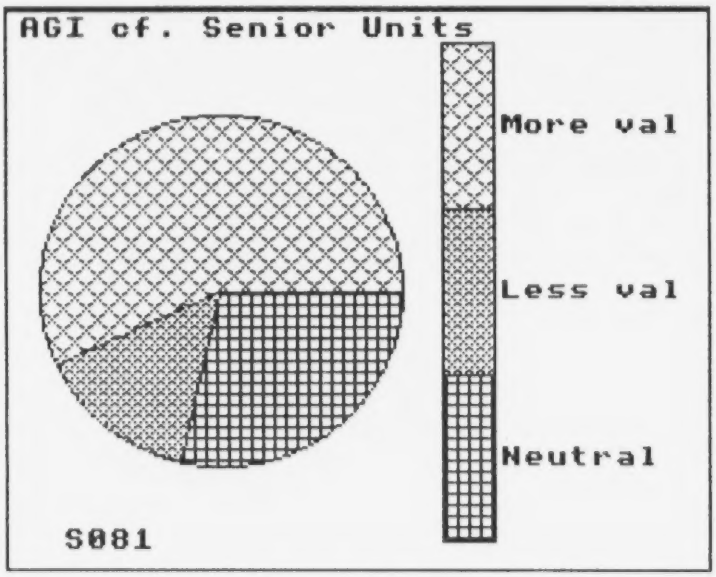

Fig.3.10 Student perceptions of AGI compared with other senior geography units

Most of the student comments referred to the interest of the topics and mentioned the importance of being able to give and justify their own opinions. May students, while praising the course, expressed concern about the amount of time needed to complete assignments.

* "The best unit, but the hardest to do and master, but it did deal with issues that usually don't get a consideration."
* "AGI is good, but it is not the only subject you get assignments in."
* "I took geography because I enjoyed it and was interested in the topography, climate, resources, etc. of the world, which I believed was geography. This was a great disappointment to me - I feel that the future should be left to some other subject."
* "Easier - showed how valuable your thoughts, ideas, discoveries were. It made you realize how big a part you play in the society and environment. It was more interesting and enjoyable, and not as many exams."

The teacher's summary comments on AGI

When asked to comment on the help offered in the syllabus document, this teacher suggested that it needs careful interpretation and that other teachers were of greatest help to him in his initial preparation. The theoretical readings which were provided were felt to be more theoretical than useful for practising teachers, and to include too much information. They were not felt to have been of great practical value.

The apparent contradictions in the syllabus document were not seen as having been a great problem, since it was felt that the kind of course implied by the matrix on page 10 could not be satisfactorily achieved in a single semester.

This teacher suspected that AGI appealed to the more adventurous students in his group, but noted that, nevertheless, the overall marks for this unit were higher than in other semesters.

In comparing AGI with other units, the teacher emphasised the importance of "lowering the teacher profile" for AGI while reiterating that his own teaching style throughout the school was a "challenge approach" - "Here is a problem. How do we find an answer?"

Assessment of AGI

In this school, AGI was assessed by a combination of examination, supervised practical exercises based on the introductory inquiry activities and a choice of oral written or audiovisual reports on the Lucky Country inquiry and the students' independent study. The examination included an essay and two data response questions.

The teacher stated that this style of assessment was very similar to that used in the other senior geography units, although the emphasis on examinations was less in the case of AGI. He had not found the assessment of AGI to be particularly problematic, although the creation of the actual assessment items, especially for the examination, was challenging. The teacher considered that his students achieved at a slightly higher level in AGI when compared with the other senior units.

The teacher's advice to those wishing to adopt the AGI unit

This teacher considered that AGI should be made available for general implementation but suggested that teachers approaching it for the first time would probably need help, especially from other teachers. Help was felt to be needed especially in the area of inquiry-style teaching, but it was also emphasised that the selection of suitable content vehicles was important. Topics which had been found to be successful in other schools were regarded as a most promising source of this information. The teacher stated that topics should be selected primarily from amongst those for which resources were already available in the school, although some topics could be selected for which the students could seek their own resources. Even here, however, care should be taken since students are not always in a position to judge which topics are most likely to yield adequate

information. Good students can become very disheartened when their topic falters because suitable information cannot be obtained. Primary sources of resources were regarded as being the year Books of the various states, and the publications of the Australian Bureau of Statistics.

On assessment, the teacher suggested that a three way split between class assignments, examination and independent study might be most appropriate, but emphasised the dangers of over assessment: "Keep it brief". In this connection, he suggested that the role of the State review Panel could more usefully be to moderate exit grades rather than to review work programmes.

The teacher recommended that, while students should not be selected specifically for an AGI group in their senior geography course, there might be advantages in advising students that AGI involves more work than alternative units, albeit with the potential of greater rewards, and offering a choice of groups where numbers permit this option.

In conclusion, this teacher stated: "I look forward to teaching AGI. It is less prescriptive than other units. There is freedom to pick and choose between topics and approaches. It is a good option".

-oOo-

SCHOOL FOUR

SCHOOL FOUR

The teacher and the class following AGI

During the semester in which this investigation took place, AGI was being taught for the first time both in this state high school and by the teacher. The teacher is a graduate in geography and a trained teacher with some twenty years of classroom experience.

AGI is taught in Semester 2 of Grade 12 and follows units in Settlement, Living Environment, and Man and Environment. The class size was 26 and while the school does not offer geography as a separate discipline in Grades 8 and 9, only about half the senior class had followed Grade 10 geography. A further constraint on the teaching of geography at senior level was its placement in the option system against physics and chemistry so that those students who followed a maths/science curriculum were effectively prevented from studying senior geography. It is understood that this system is to be discontinued and a "smorgasbord curriculum" introduced.

The teacher's view of AGI

This teacher considered that it was difficult to discern exactly where the main thrust of AGI lay, but suggested that he regarded it as encouraging inquiry methods in an Australian context. The decision as to where in the senior course to teach AGI, had been based on a perceived need for student maturity, as well as a wish to ease the pressures and tensions of school and give some preparation for further studies in tertiary institutions. These decisions were felt to have been correct.

The topics chosen and the methods of approach

Towards the end of Grade 11, the teacher had asked his students to list the topics into which they would like to inquire for their AGI course. From these the teacher had created a long list of topics and the final choice of the 4 - 5 topics to be studied was made by the student body. The teacher then checked the spread of these in the light of the guidance given in the syllabus document.

The topics selected for study, after a teacher-led introduction to inquiry methodology, were:
1. Where do Australians live and why?
2. What is happening to Australia's wildlife?
3. Why the Gold Coast?
4. A group investigation on topic of local significance.
5. An individual investigation

The first unit was closely structured by the teacher and included a number of specific exercises on the use of maps and statistics. The other units were less structured. In examining Australia's wildlife, students were directed to pursue an inquiry into the issues surrounding kangaroos, crocodiles or endangered species using a range of materials which were provided by the teacher. The Gold Coast was studied during a one day visit during which the students were instructed to propose a hypothesis and test it in the field. Much background information was provided by the teacher,

and class investigation and preparation time was allocated prior to the excursion. However, no specific guidance was given to the students concerning the areas of inquiry. The group investigation on the local issue was very loosely structured since it was the final topic and presentation was to be in video format. The independent study was initiated during the semester and findings were presented in written form.

The teacher's perception of the success of the topics

The teacher had hoped and expected that the investigation into Australian wildlife would be the most successful, but this expectation failed to materialize when the unit was directed by a student teacher. He did, however, feel that the motivation of the class towards the group video project was greater than for other units.

There was less hesitation in nominating the Gold Coast investigation as the least successful. The teacher considered that the inquiry had been too open, and that more direction was needed. On future occasions he intended specifying the type of questions the students should investigate as well as giving more guidance on the methods to be adopted.

The students' perceptions of the inquiry units

Figure 4.1 shows that the students regarded the Gold Coast topic as the most valuable, although it could be suggested that a day at the coast with few specific demands made upon them appealed to a concept of value outside that usually asociated with school study. The wildlife topic was also regarded as being most valuable by many of the students.

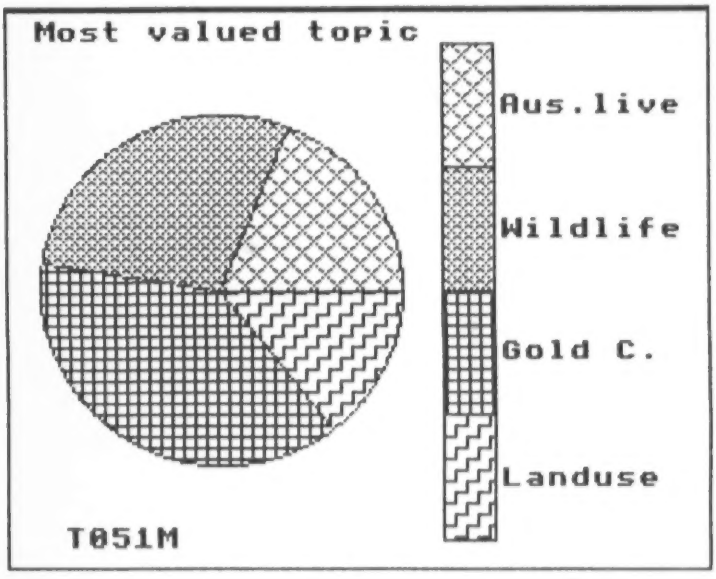

Fig.4.1 Students perceptions of the most valued topics in AGI

The comments made by the students about their most valued unit referred less than might have been expected to the topics and frequently paid tribute to the opportunity to explore the students' own attitudes. These students often referred to the chance to use skills and methods in an area of their own choosing.

* Australian living - "Interesting: you can relate it to your own experience"
* - "It gave me ideas where I could live later in life"
* - "Helped us to understand where people live and what will happen in the future"
* Gold Coast - "We did the whole inquiry ourselves"
* - "It made me very satisfied tht it was my own work"
* - "A better learning experience by carrying our own field experience"
* Wildlife - "We discussed all sides of the topic so that you could see the different ways people are involved in the industry"
* - "A better learning experience by carrying out our own field investigation"
* Group topic - "It gave me an idea of what I would like to do - be a town planner. It allowed us to use our skills and ideas we have been taught in other geography semesters such as working out land use and surveying."

Figure 4.2 shows the students' nominations for their least valued topic.

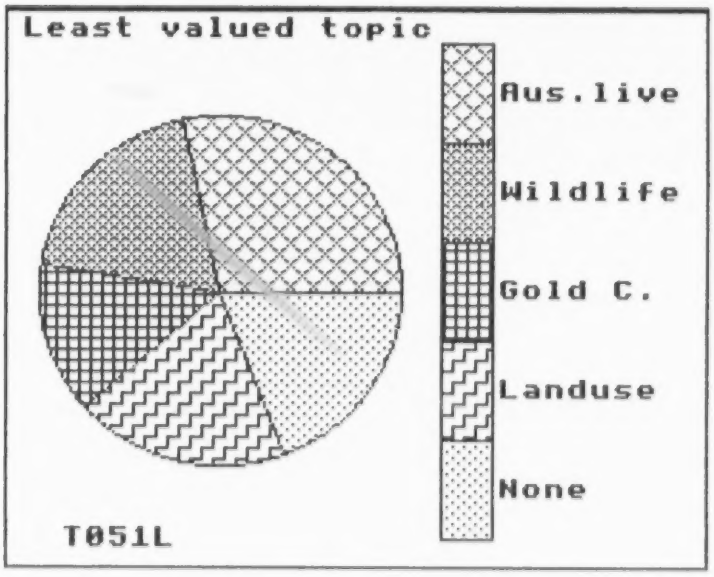

Fig. 4.2 Students' perceptions of the least valued topics in AGI

In nominating their least valued topic, the students commented on both the perceived relevance of each topic to their lives, and the extent

to which each contributed to their specific knowledge of the topic. A few students commented on the teaching strategies experienced.

* Australian living - "We didn't learn anything we didn't know before."
* - "I don't think it had any great purpose."
* - "We had to follow a work book and I lost interest."
* - "Most of the work was done by the teacher."
* Group topic - "It doesn't effect me - not much can be gained from it as we cannot do anything about congestion."
* - "We were not given enough guidelines to follow so we were unable to organize an appropriate work program."
* - "Its boring surveying cars etc."
* Wildlife - "Some sections were discussed in previous years - apart from that it was good."
* - "It was the least practicable. Although interesting, it was not of great importance."
* - "This unit was taught by a student teacher and was not put across well because of his inexperience and lack of enthusiasm."
* Gold Coast - "Done before - carried on for far too long."
* - "It has been studied in earlier years of geography. Info. obtained was basically covered before."

It should also be note that five students recorded simply that no topic was "least valuable" and that they had enjoyed them all.

Student perceptions of the use and value of various types of inquiry

Figure 4.3 shows the students' perceptions of the extent to which they experienced the various types of inquiry and Figure 4.4 shows their evaluations of those inquiry types.

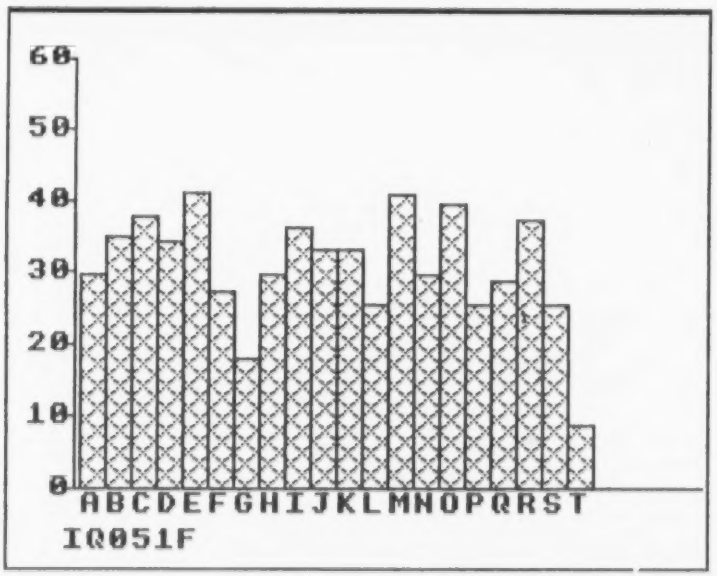

Fig.4.3 Student perception of their experiences of various inquiry types

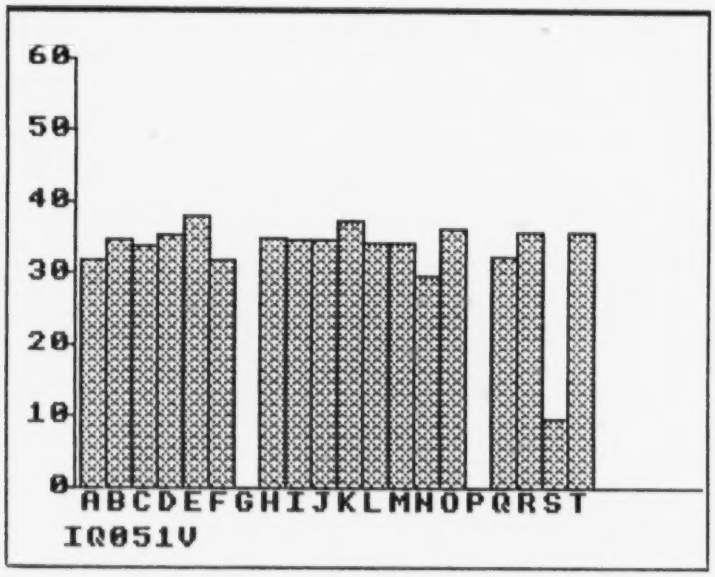

Fig.4.4 Student perception of the value of various inquiry types

The students' perceptions of their AGI course appear to match the course as described by the teacher both verbally and in the school work programme. They report an emphasis on clarifying their own personal perceptions, imaginative responses to problems which they themselves have selected and inquiry methodology in which they are basically responsible for finding information from libraries and elsewhere, but with the teacher available for consultation when required. The low frequency with which experimental inquiries occur was explained by the teacher in terms of the relatively high proportion of the students who were studying biology for whom such methods would involve some repetition, and an attempt on the part of this teacher to avoid repetition of work undertaken in the Man and Environment unit.

Figure 4.4 suggests that the students valued all the aspects of inquiry with which they came in contact, with the single exception of individual research leading to a final report.

The resources used in the course of the semester

Figure 4.5 shows the students' perceptions of the extent to which they used various sources of information. The students' responses suggest that there was a high level of use of videos, photocopied information and official information handouts. Literature, teacher worksheets, field work, text books, visiting speakers or laboratory equipment were not seen as having made a contribution ot the course despite one student's reference to a workbook in his or her comments on the least valued topic. These responses appear to support the teacher's contention that the majority of the resources

should be supplied for students to work from.

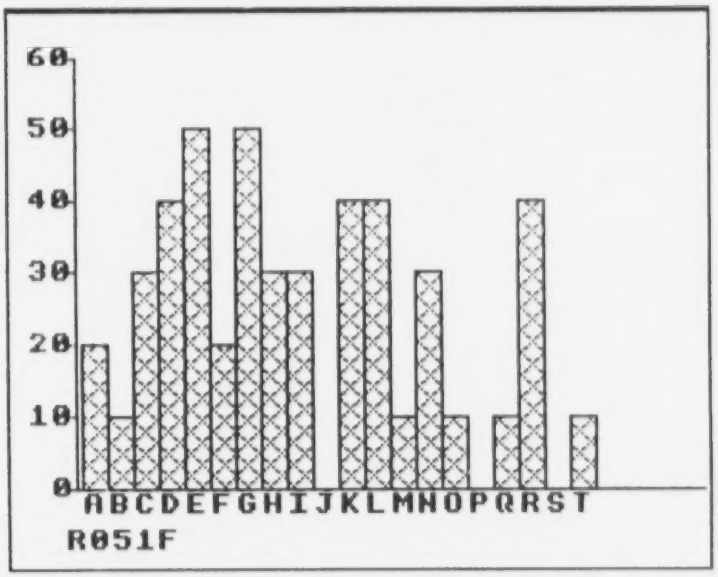

Fig.4.5 Student perception of their use of various resource materials

The students expressed a high valuation for audio-visual information of all types with relatively high values accorded to text books, encyclopaedias, visiting speakers and visits out of school. They did not regard literature, field investigations or teacher-produced worksheets as being of great value.

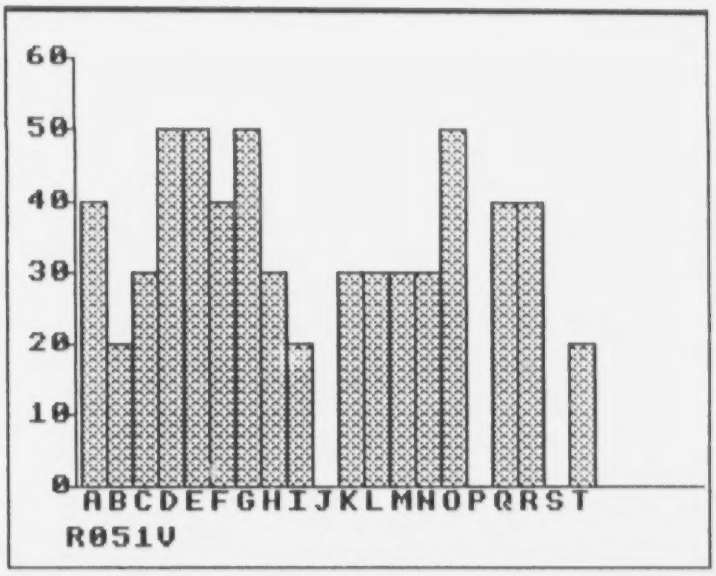

Fig.4.6 Student perception of the value of various resource materials

Figures 4.7 and 4.8 show the extent to which the six primary modes of data presentation were used and evaluated by these students.

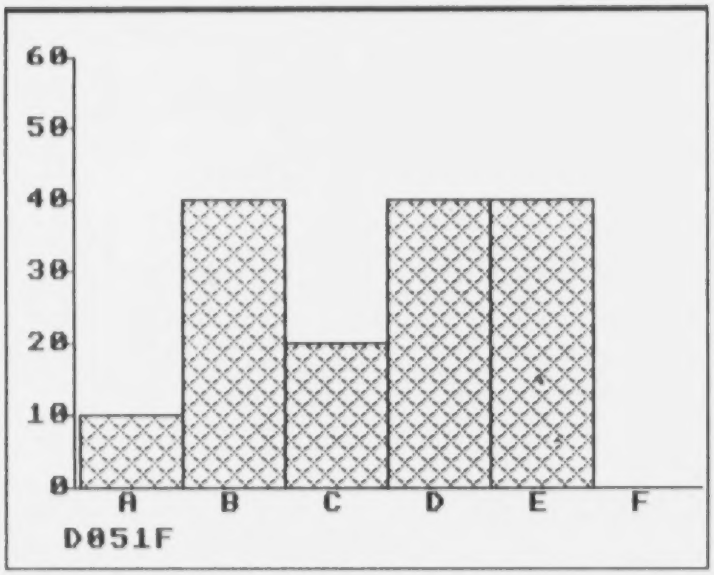

Fig.4.7 Student perception of the use of basic data presentation modes

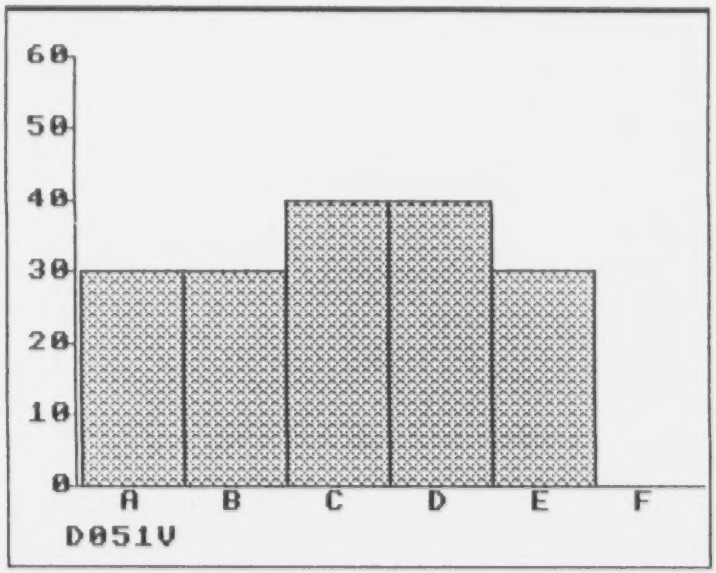

Fig.4.8 Student perception of the value of basic data presentation modes

These data suggest that photographs, written descriptions and graphs were encountered much less during the AGI course than tables, diagrams and maps. However, the students appear to place greater value on text and diagrams as aid to learning than the other modes of presentation, and to regard graphs as of no importance whatever.

The students' evaluation of AGI compared to their experiences of Geography in Grades 8 - 10

Figure 4.9 shows how the students regard the AGI course when compared with geography courses in Grades 8 - 10. All the students responded and the results were overwhelmingly in favour of AGI.

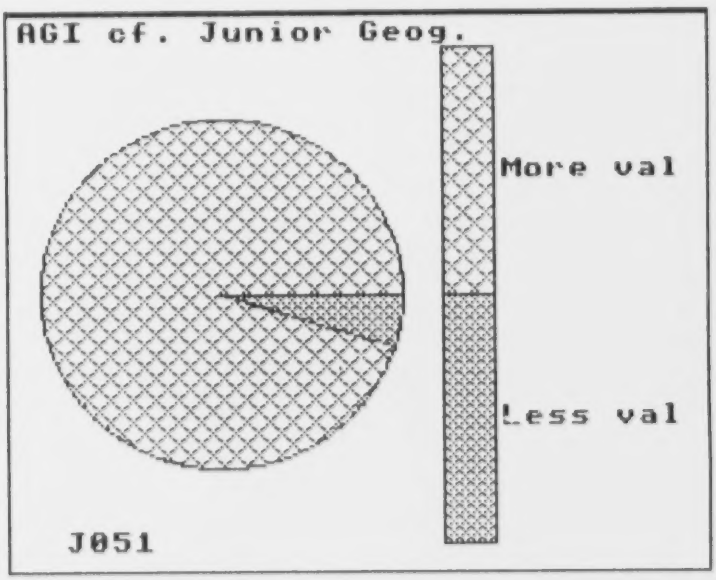

Fig.4.9 Student perceptions of AGI compared with the 8-10 Geography course

Comments by students in support of their decision generally made more references to the methodology of the unit than the topic content. They included:

* "More responsibility is given to us"
* "It gives you an exceptance of responsibilty to get the work done"
* "More variety - you have a choice of what you would like to study"
* "Topics were more interesting and the classes provide a lot more development of individual and group work skills"
* "More stimulating - you look at local situations which interest us more than overseas. Practical work is enjoyable"
* "AGI is a more practical unit - it enables the individual to develop his/her own skills and accept responsibility."

The one dissenting voice in the class wrote:

* "I don't like it as much, but it does provide a greater amount and variety of learning."

Students' comparisons of AGI with other senior geography units

Figure 4.10 shows how students compare AGI with their other senior geography units. Once again AGI was regarded as being of greatest value by the majority with only one dissenter who chose to make no justifying comment.

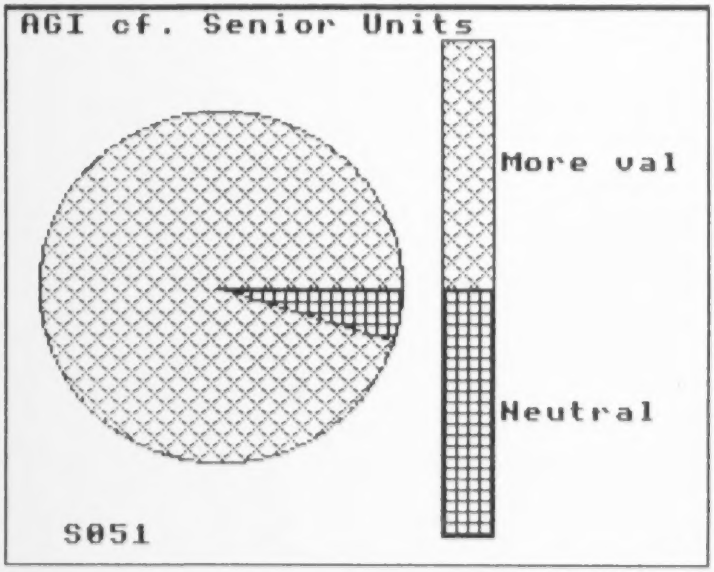

Fig.4.10 Student perceptions of AGI compared with other senior Geography units

Student comments in support of this enthusiasm again concentrated on the development of skills, classroom atmosphere and only tangentialy on the content of the course. Comments included:

* "Good preparation for college/uni. It has helped me to really use my knowledge. Excellent."
* "Better - a lot less theory and more practical activities which make the course more enjoyable."
* "You aren't as rushed for assignments and more practical activities which makes the course more enjoyable."
* "Teaching atmosphere more relaxed while being more interesting."
* "I like having more freedom in what you study. You can chose a topic and therefore make more effort."
* "With the other units we were told information, did more assignments and studied for exams. AGI enables us to use our own enquiry skills proving more practical."
* "I've learnt more, my interest has strengthened, my general ideas on geography have strengthened."

The teacher's summary comments on AGI

This teacher did not regard the syllabus document as being of great value in defining 'inquiry' and neither did he find much help in the theoretical readings which were supplied. He would have preferred a single sheet of paper listing the various approaches to inquiry which are acceptable to the Board. However, as a result of the meetings of the teachers involved in the pilot of the syllabus, the teacher had found no problems in meeting the syllabus criteria. The list of process objectives supplied had been used as a check on the inquiries pursued in the early part of the course and these acted as exemplars from which the students could then select their own approach for their independent inquiries.

This teacher noted that AGI appears to appeal to students of lower ability more than other senior units although there were no obvious differences in the levels of achievement of individual students between the various units. AGI was observed to have a greatly motivating effect on students of all abilities.

The greatest problem to which this teacher admitted was that caused by the changed relationship between teacher and student. Describing himself as being "of the old school", he explained that his preferred style of classroom interaction involved a chalk/talk introduction followed by discussion and a range of practical exercises and data interpretation. In teaching AGI this teacher found it difficult to "sit and wait for the students to work their way through a problem". Later in the discussion, he confessed to finding it difficult not to 'blow up' when his students were apparently not working as hard as they had in other units. Despite this, the increased co-operation between teacher and class, especially in the production of the videos, was welcomed, even though on future occasions, the teacher intended to insist on more "work" in class time.

The practical activity aspect of AGI was already part of the teaching repertoire of this teacher in other senior units, although he did not consider that he implemented "formal inquiries" in Grade 10 and below. Having taught AGI, he was in the process of introducing more inquiry techniques into the lower school to improve his students' abilities in the skills of geography. However, he maintained that the very differences of AGI were of value in maintaining motivation in Grade 12 students.

Assessment of AGI

In deciding how to assess AGI course, the teacher had drawn up a list of possible methods and asked the class to nominate the four methods they would prefer. In the event, assessment was based on peer group assessment of the group project, a one-day, open book examination in the school library, a written report on the one day field excursion and the choice of an individual research project or two short inquiry process tests.

The teacher's advice to those wishing to adopt the AGI unit

The teacher considered that the AGI unit should be made available for general implementation.

In drafting the work programme, student involvement was seen to be

advantageous although the teacher should always 'guide' the choice. Advice from other schools was found to be helpful, but specific inquiries and resources should be amended to suit particular classes. It was emphasized that inquiry units cannot be borrowed in their entirety, but that contact with other teachers was of inestimable value.

Free resources of all kinds were seen as being important for the course, and teachers should maintain their own files of appropriate materials. It was pointed out that each document collected led to the next stage of constructing a new unit.

Just as the work programme should be worked out by teacher and students in collaboration, with advice, so the assessment should be negotiated. A successful course stems from a happy teacher and happy students.

The teacher was opposed to any form of selection for AGI as distinct from other senior geography units. It was felt that the least motivated students had shown the greatest improvements in their work and attitudes when following AGI.

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SCHOOL FIVE

SCHOOL FIVE

The teacher and the classes following AGI

At this state high school AGI was taught by the Acting Subject Head, a trained graduate with a higher degree and 17 years experience and an assistant teacher who is also a graduate but with 6 years experience. For both the teachers and the school the semester studied represented the first experience of AGI.

The AGI course was taught in Semester 1 of Grade 11 and preceded courses in Development, Physical Geography and Man and Environment. The course was taught to two parallel classes each of 14 students. It was estimated that 80% of these students had not studied geography in Grades 9 and 10 and this was attributd to the school's policy of placing geography on the same line as chemistry and biology in area 1 and against biology in area 6. The result is that science oriented students cannot study geography in their senior years, and the geography staff felt that geography was frequently the choice of less able students.

The teachers' views of AGI

Both teachers were agreed that the main emphasis of AGI should be the inquiry methodology applied to Australian issues from a geographical perspective.

When the Acting Subject Head was constructing the school's work programme, the school principal exerted considerable influence to ensure that AGI was taught in Grade 11 as he believed that Physical Geography and Man and Environment were too demanding for Grade 11 students. The school also decided that, in view of the small proportion of senior geography students who had studied geography in Grades 9 and 10, the first semester of the senior course should not be taken into account for assessment. AGI has thus become a course of preparation for the other units which follow.

The topics chosen and the method of approach

A number of topics to be investigated were chosen by the students at the end of Grade 10 from the list prepared by the teacher in School 1 whose work has been described. From this 'long list', the Acting Subject Head selected a short list which fitted the matrix presented in the syllabus document. More topics were presented for accreditation than were intended to be taught in a single semester to give flexibility on future occasions.

In the semester studied, the course was introduced with a number of inquiry activities in order to present students with a range of possible approaches to inquiry, and then students pursued four specific topics and an independent inquiry. The topics were:

1. What's the best wine in Australia?
2. Where do people live in Australia?
3. Why are settlements located where they are?
4. Why preserve the reef?

The school work programme outlines the approach to be taken for each

pattern. Although each topic is to be approached in a slightly different way, the guidelines for "Where do people live in Australia" are reproduced here as representative of all.

"a) Students to list their assumptions re the topic (in groups)
b) On basis of class discussion/listing students develop their own hypotheses - where and why Australians live.
c) Given their hypotheses suggest what data is required and from where obtained.
d) By a process of map tracing, overlays and analysis test the hypotheses suggested.
e) Draw conclusions and attempt to evaluate these and the study."

It should be recorded that although all the topics are phrased in the form of questions, not all emphasise the issues approach which is now made explicit in the Queensland 8 - 10 syllabus document. The result could be, in some cases, that the inquiry leads to a description with little or no analysis of further implications or alternative strategies. This dichotomy can be exemplified in the work programme references to "What alternative strategies are available" in the section on the reef, but to "How is (tourism) reflected in - buildings, caravan parks, camping, housing etc.?" in the section on the Gold Coast. However, in later discussions, the Acting Subject Head stated that despite the Work Programme, the full implications of each topic were explored with the students.

The teachers' perceptions of the success of these inquiries

The teachers agreed that different students gained from each topic in different ways. They nominated the inquiry into the Great Barrier Reef as having been the most enjoyable althugh they felt that many students gained the most insight as a result of their independent inquiry.

The least succesful topic was regarded as having been that on wine. This was attributed to a shortage of resources coupled with the fact that a field excursion to wine growing areas of the granite belt suffered from poor organization on the part of the winery visited. A subsequent visit the following semester to a different winery was much more successful.

The students' perceptions of the inquiry units

Figure 5.1 shows that students agree that the Great Barrier Reef was the most valuable topic, with wine being chosen by just under a quarter of the students. The diagram confirms the teachers' view that all topics were found to be valuable by some of the student body.

Student comments on their most valued topic were overwhelmingly focussed on the knowledge of the topic obtained. Only one student varied from this and mentioned the joys of working independently. Other comments included:

* Reef - "I found this topic valuable because it was something I could be interested in and I learnt things I didn't know about before"

- "This theme helped you understand the faults man has made and also the good things he has accomplished on the reef. The reef theme consisted of film strips etc. which were interesting and beneficial to all students"
- "I never before realized that there were problems facing the reef caused by mankind"

* Wine - "It was a theme I knew absolutely nothing about so it has given me a far greater understanding of wines in Australia
* - "We went on an excursion which was both educational and exciting. It was a good way of becoming closer to the other students and the teacher"
* - "When we grow to an older age the knowledge of how to pick good wines would be an aid to how to select them and where they can be found"
* Settlement - "This gave me an insight to the reasons why cities and towns are located where they are. It will help me to chose my place of habitance when I move out of home"
* - "We could pick any place we wanted to do an assignment on the area"

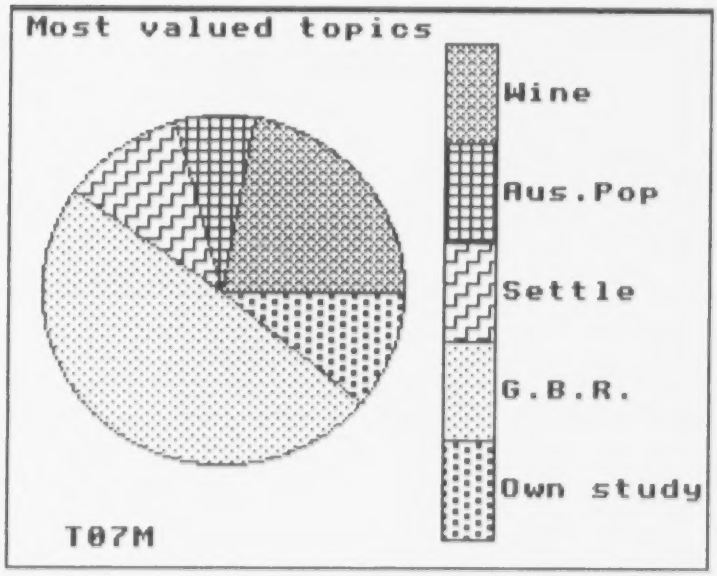

Fig.5.1 Students perceptions of the most valued topics in AGI

Figure 5.2 shows which topics the students nominated as the least valuable in the course. Wine, settlement and population shared this honour almost equally. The Acting Subject Head suggested that a contributary factor to this perception of the students was that these topics had been taught to one of the classes by a supply teacher. The reasons given by the students to justify their stance would offer some support for this contention by their references to their "lack of interest" and "boredom". Other comments, however, suggest that the topics and the focuses of the inquiries may have been influential. They included:

* Wine - "What is the great learning experience to be gained from studying wine?"
* - "This topic has no relevance to my life style as I don't drink and don't care which wine is best. I prefer coke"
* - "Finding out where the best wine is is not as important as saving a resource"
* - "There are more important topics"
* - "It has little bearing on our lifestyle and was extremely boring"
* Settlement - "It was a bit boring and I did not think it was that important"
* - "Boring - not interesting"
* - "I do not need to know much about settlement patterns as they don't really affect me"
* - "When we get older the information about the settlement patterns of S.E.Queensland is not going to be very relevant for daily life. It is not a basic required knowledge for adulthood"
* Australian population - "I thought it was obvious where the majority of people live and where they don't"
* - "A lot about Australia's population was already known to us. It wasn't important to our future"
* - "It is really just common sense. The topic just didn't appeal to me"

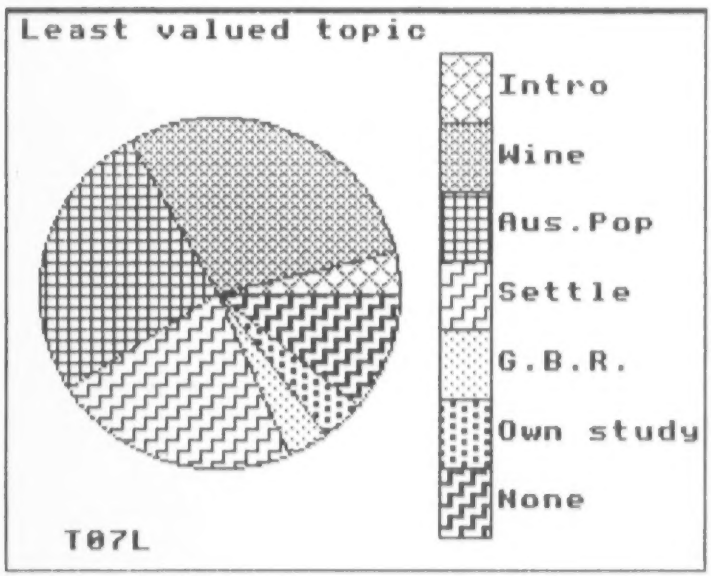

Fig. 5.2 Students' perceptions of the least valued topics in AGI

Student perceptions of the use and value of various types of inquiry

Figure 5.3 shows the students' perception of the extent to which various types of inquiry activities were undertaken in their course. These students perceived their course to have been strongly oriented towards problem solving with the responsibility for finding information from libraries and other sources resting firmly with themselves. In view of the work programme guidelines and their comments about the topics, this seems surprising. The response may perhaps be attributed to teachers referring to each stage of the inquiry process as a "problem" while the teachers suggested that although the library was frequently the base for AGI work, little library research as such was accomplished. "The students regard library research as a series of comprehension exercises. There is too much photocopying. We backed off library research for their independent research assignment and said that all data must be primary data, not secondary."

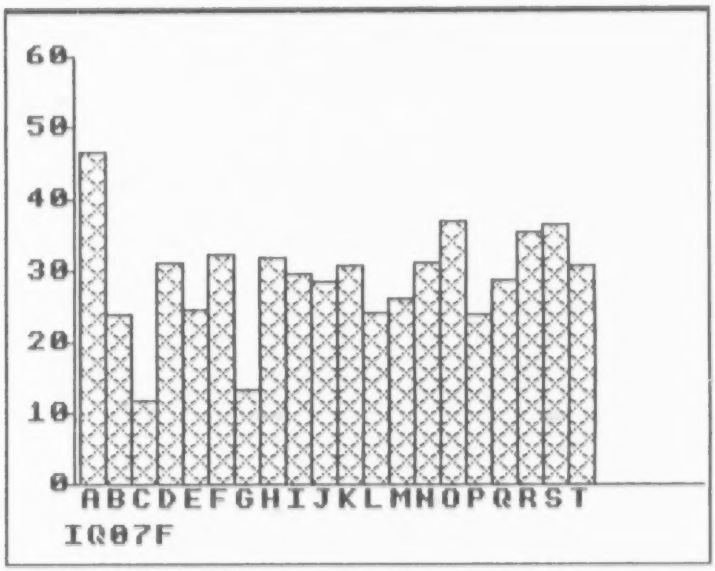

Fig.5.3 Student perception of their experiences of various inquiry types

Figure 5.4 shows the students' evaluations of the various inquiry types. The non-recognition of imaginative responses and experimental work was to be expected from the responses shown in Figure 5.3 but less than half the students recorded an opinion and accordingly the valuation is omitted from the graph.

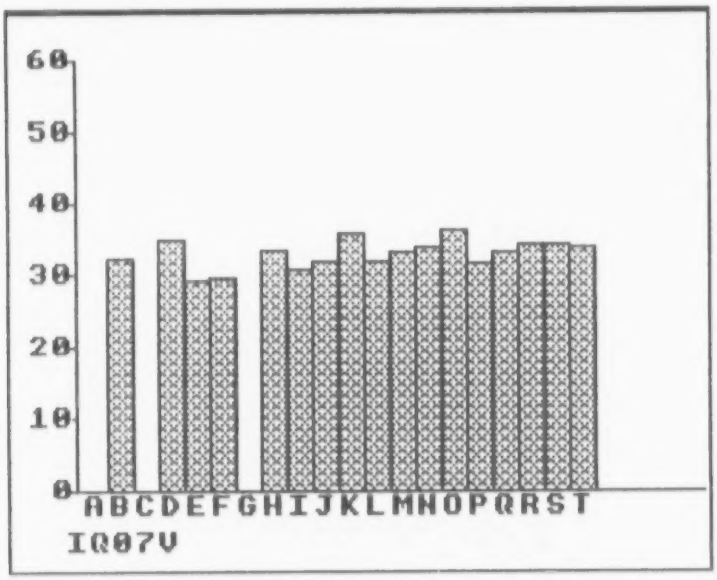

Fig. 5.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

Figure 5.5 shows the students' perceptions of the extent to which they used the various sources of information. The graph shows that these students used a wide range of resources to a considerable extent. This was one of few schools in which the students perceived field work to constitute a major part of their studies. The teachers accepted their stdents' perceptions as reflecting their own and acknowledged that they had supplied most of these resources.

Figure 5.6 shows the students' evaluations of the various resources they used. While most were valued to some degree, school level text books were seen as being of most value, with atlases, topographical maps and audio tapes only slightly less so. The teachers accepted the view of books and maps, but were surprised at the high valuation accorded to audio tapes.

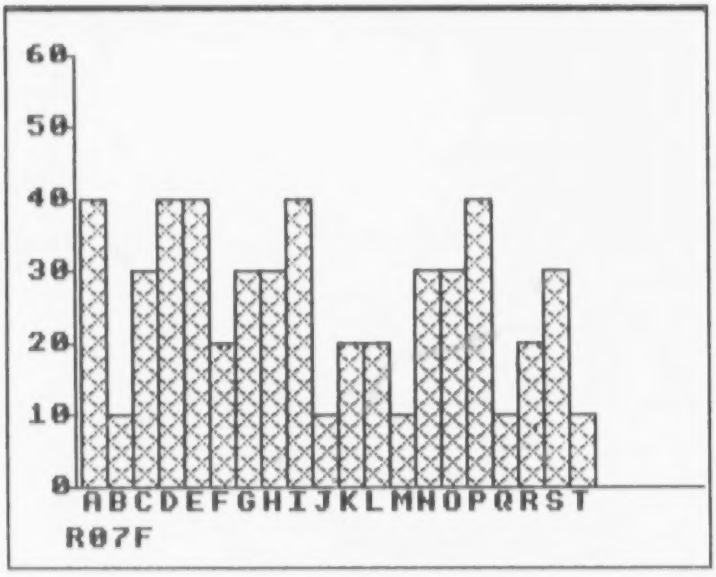

Fig.5.5 Student perception of their use of various resource materials

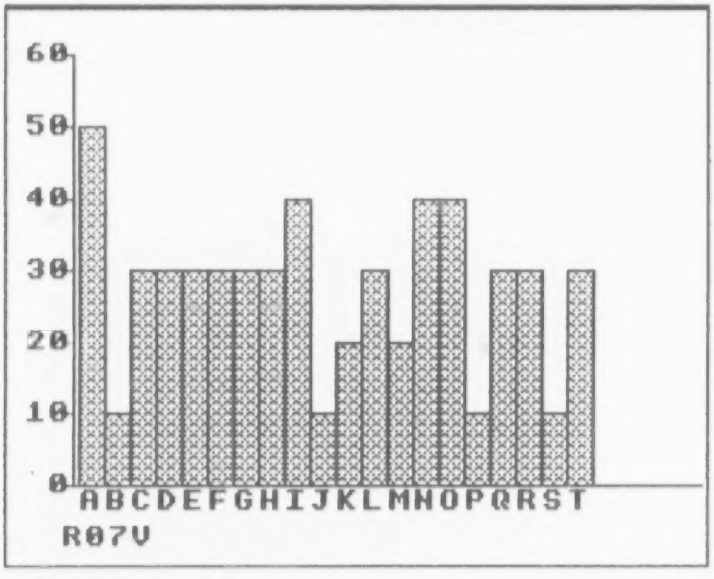

Fig.5.6 Student perception of the value of various resource materials

Figures 5.7 and 5.8 shows students' perceptions of the use and value of the basic modes of data presentation. It reveals that photographs were little used, but were seen as having considerable value by students, while graphs receive greater attention but were not perceived as of great value.

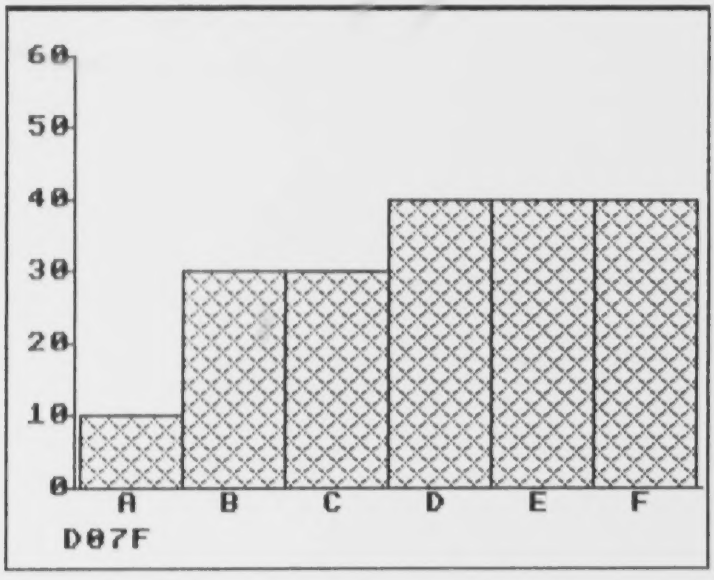

Fig.5.7 Student perception of the use of basic data presentation modes

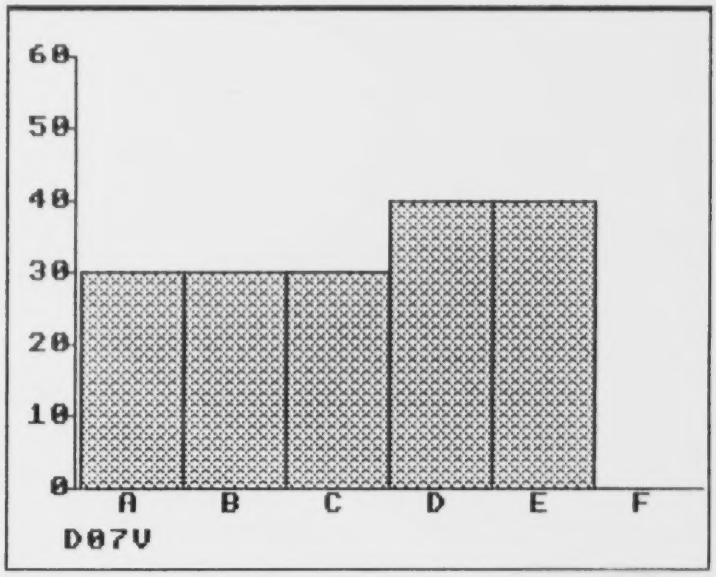

Fig.5.8 Student perception of the value of the data presentation modes

The students' evaluation of AGI compared to their experiences of Geography in Grades 8 - 10

Figure 5.9 shows that the majority of students considered that AGI was more valuable to them than their junior geography course.

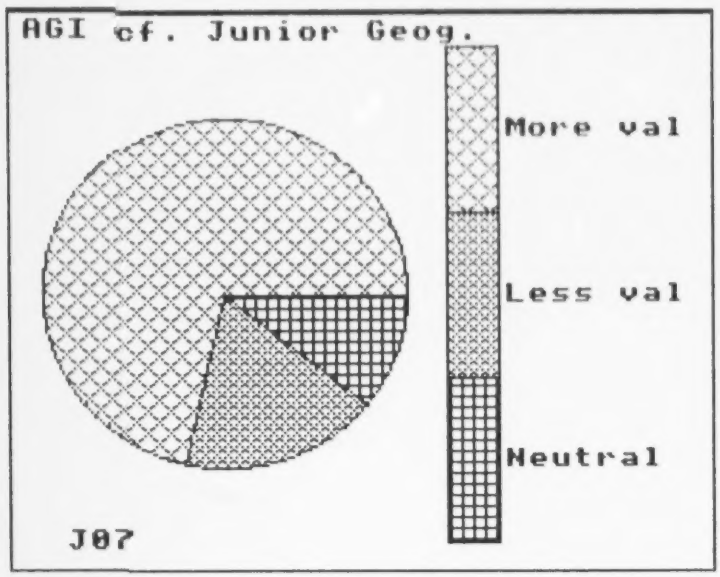

Fig.5.9 Student perceptions of AGI compared with Geography 8-10

The students' comments placed great emphasis on their own involvement in AGI compared with the reception learning with which they typified their earlier geography experiences. This is reflected in the selection of comments which follows:

* "AGI gave us a chance to work individually or as a group. Instead of the teacher doing all the talking, we were included in the discussions."
* "This is much more fulfilling and interesting. This segment relates to us for our own country and makes us more aware of it."
* "In the older grades we participate more with discusion whereas in Year 8 it was more of a dictation lesson."
* "In 8 - 10 you don't feel as involved as you do in Year 11. You get to do more variation of the work in Year 11 e.g. more field trips, class discussions etc.
* "AGI is more relevant geography: countries and deserts are uninteresting and have not a lot of relevance cf. the topics we have studied this semester."
* "I thoroughly enjoyed AGI. It was definitely better than 8 - 10 geography where we were drawing maps etc."
* "This approach is more detailed on the topics than in recent years and I feel that this makes it more of a challenge."

However, there were dissenting voices:

* "I think that I got more out of geography in the years 8 - 10 than the courses so far. I think that AGI is a waste of student resources."
* "AGI is very similar to 8 - 10. There may be more time to ourselves know."
* "I do not like it. It is more a study of social problems than a geography unit. If they are going to continue in this way, they should rename it. I do not like being a guinea-pig for the well being of future students for it inhibits my learning."

Students' comparisons of AGI with other senior units

Since AGI was the first unit of their senior geography course, these students were unable to respond to this question.

The teachers' summary comments on AGI

These teachers had found the syllabus document helpful. especially since they had already had experience of inquiry teaching in previous years. Similarly, the readings which had been supplied were found to be useful as further theoretical support for what they considered they were already achieving. The work programme had been constructed in the light of the core and content matrix provided in the syllabus document. The AGI syllabus was appreciated for the freedom it afforded teachers. This flexibility was particularly appreciated when AGI is compared with other senior syllabuses which were perceived by these teachers as being "quasi-prescriptive".

The teachers thought that many students achieved higher levels of attainment in AGI than in other units, although they conceded that that some less secure students felt threatened by the freedom afforded them. Interest and motivation were seen as being higher under AGI than the other units. Ther relationship between teacher and class was seen to improve during the course of AGI, although this may also be attributed to the increasing confidence of students entering their senior years.

The Assessment of AGI

AGI in this school was assessed by five instruments: an oral presentation, a written field study report, data response test and a written individual research project. The teachers felt that the individual research assignment was the most effective way of both learning and assessment. They insisted that students adopt the "scientific structure" of proposing a hypothesis and then testing it. Little emphasis was placed on the assessment of content knowledge, and the assessment of AGI did not contribute to the summative assessment of the senior geography course.

The teachers' advice to those wishing to adopt the AGI unit.

These teachers emphasised the importance of student input to the choice of topics and suggested that this process of consultation should take place in good time to allow the teacher time to collect resources. They further suggested that staff in other subject areas could be consulted, and that geography teachers should be open-minded about the type of topics to be studied.

The collection of resources was seen as being a time consuming process, but necessary for the successful application of the course. In collecting resources, teachers must learn to distinguish between data from which students can draw conclusions rather than text book materials in which students are frequently faced with answers to a question posed by the author rather than materials with which they can work. The teachers regretted the terms of the copyright acts which inhibit their use of valuable news and documentary programmes as primary source materials. The potential of such materials was emphasised for its currency, high quality, and potential for motivating students with a wide range of ability.

The teachers regarded ideal assessment items to consist of practical applications of skills with little reference to factual content. In general they considered examinations other than data response tests to be inappropriate.

Finally, these teachers registered a plea for senior geography to be regarded was a course of study over two years. They felt that teachers should not be regimented and that compulsory topics should not be imposed. They welcomed the flexibility of the existing AGI syllabus document and hoped that such flexibility could be introduced into other syllabus documents.

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SCHOOL SIX

SCHOOL SIX

The teacher and the class following AGI

This state high school has been involved in the AGI unit almost since its inception, although the teacher responsible for it in the semester under evaluation had not taught the course before. This teacher has a good honours first degree majoring in geography, a first degree in Education Studies and a teaching diploma. He has some eighteen years of classroom experience.

The AGI course was taught to a class of 21 students in the final semester of Grade 12. These students had previously followed courses in Geomorphology, Settlement and Development. Most of the students had followed geography in Grades 9 and 10, but the school policy for senior courses had resulted in few students with an interest in maths and science following geography, while brighter students with an interest in humanities often chose to study English and drama in which the school had a special interest.

The teacher's view of AGI

This teacher had interpreted the syllabus document as promoting a course in which the prime emphasis is on inquiry methodology, with the Australian content and the geographical interpretations of Australian topics as secondary. However, he suggested that while inquiry methods were used throughout his teaching, the "scientific method" suggested in the syllabus document was not necessarily the best method of approach. The teacher stated that the students of the school were not very amenable to the lecture method of teaching, but that their verbal presentations were excellent, due to the high calibre of the drama teaching. This teacher had not received the theoretical readings which were sent to trial schools

The school work programme for AGI had been constructed by the previous Subject Head, but this teacher felt in sympathy with the approach which had been adopted and approved of the decision to place AGI in semester four since it could then replace Man and Environment which was the best resourced unit then taught.

The topics chosen and the method of approach

The teacher involved in the evaluation had inherited the topics from the previous subject head, but he thought that they had been chosen from topics which had been found to have been successful when taught as part of the Man and Environment course, together with topics which had interested that teacher.

The topics studied were:
1. Introduction to Inquiry
2. Queensland Coasts
3. Rainforests
4. Energy in Australia
5. Individual directed study

The introduction was allocated the geography lessons of a single week and was devotd to "describing the inquiry method of learning or problem solving" and identifying the "main stages of the inquiry process" using various resources including mystery and detective fiction.

The ensuing units were guided inquiries. The school work programme outlined "themes" to be investigated in each topic, but the purpose of the inquiries was not specified for each topic. Thus, the themes to be the focus in the study on coasts were specified in terms of content - e.g. coastal environments, pressure on coastal areas, the need for a buffer zone, and conflicts in coastal use.

On the other hand, the inquiry on Rainforests and National Parks states that "at the end of this unit, students should be able to provide a well reasoned answer to the question 'Do we need National Parks?'" before suggesting that "themes to be explored will include a) The definition of a National Park in the Australian context as compared with elsewhere. .....d) A detailed examination of the environment and activities offered in a local National Park such as Binna Burra." This unit included a day visit to Binna Burra.

The unit on Energy lists a number of questions under "content objectives" such as "What are the energy resources of Australia?", "How is energy used in Australia?", and "What is the future of Australian Energy?" The approach adopted was for students to "work in groups and employ the enquiry approach to a number of energy resources per group."

The evaluator received the impression that, with the exception of the unit on Rainforests and National Parks, the emphasis of the inquiries was on 'finding information about ....' rather than 'investigating a solution to the problem of .....'

The teacher's perceptions of the success of these inquiries

The teacher identified the unit on National Parks and Rainforests as being the most successful. He attributed this success to the field study visit involved, and suggested that the students also felt that it is 'trendy' to like national parks. The reader should note, however, that this was also the only unit in which a single inquiry question was stated.

The teacher also suggested that the unit on Coasts was probably successful while the introductory unit was popular as the students enjoyed the activities on study skills and the videos of fictional detective work.

The teacher thought that the least successful topic was Energy. He explained that group work was not popular with the students due to the problems they encountered in allocating work within the group. Furthermore, the school had considered energy conservation as an issue within its own community, and the topic had been taught previously in geography, so the students were bored with the topic of energy as a whole.

The students' perceptions of the inquiry units

Figure 6.1 shows that the majority of students agreed with their teacher on the value of the rainforest unit, but that for about a quarter of the students the most valuable unit was their own independent study.

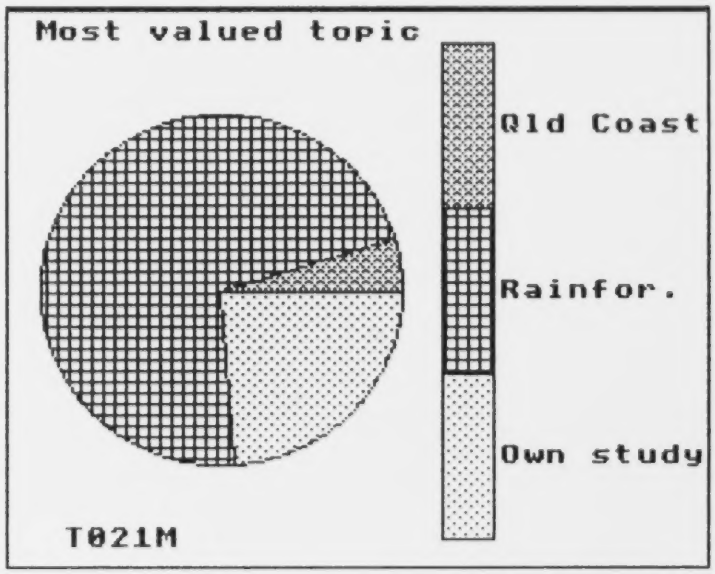

Fig.6.1 Students perceptions of the most valued topics in AGI

The student's comments placed greatest emphasis on the knowledge gained by the various units, with high emphasis also being placed on the perceived interest of the topics. Students' comments included:

* Rainforests and National Parks - "I wish to carry on my life in this field and any experience especially in this form is valuable"
* - "It showed me how important national parks are to Australia as well as to the world"
* - "National Parks help to keep our country beautiful and clean"
* - "getting back to nature, realizing the importance of a natural environment"
* - "Geography will never benefit me in any way so I don't think anything in it is valuable, but I like National Parks because they're so natural and peaceful so I like to learn about it"
* Independent project - "I did all the research by myself and this taught me many things including discipline and I learned more about my home town"
* - "It enables you to learn and study when it is convenient to you"
* - "It encouraged me to look at my community - it seemed personal and worthwhile"
* - "I have always enjoyed the demographic side of geography. It interested friends who didn't do geography to see that geography doesn't only involve mapping and the like"

Figure 6.2 shows the students' perceptions of the least valuable topics. It shows that the topic on energy was indeed least valued by the students, although the students' perceptions of the introductory unit are at variance with those of their teacher.

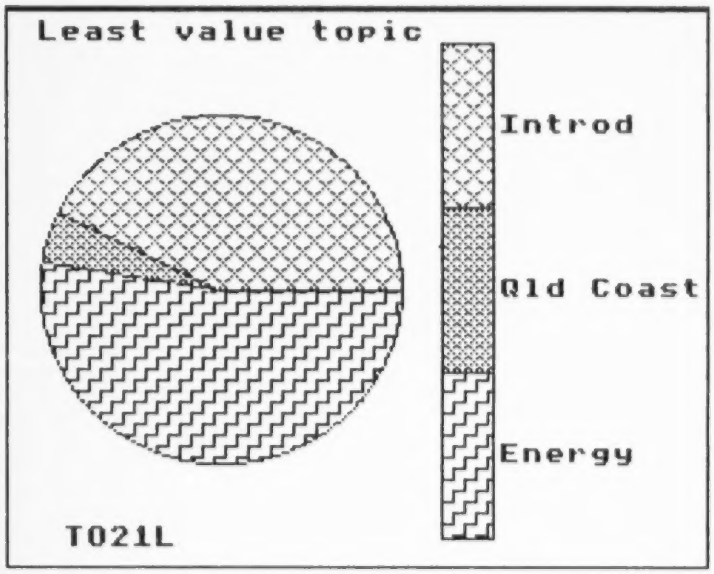

Fig.6.2 Students' perceptions of the least valued topics in AGI

The students' comments referred to the perceived irrelevance of the content and the teaching/learning styles adopted. A sample of the responses follows:

* Energy - "Not interesting or beneficial"
* - "We already knew it all"
* - "I'm into art, not earth"
* - "Energy doesn't thrill me.
* - "Group work wasn't well researched and little was learned. Alternative forms of energy uninteresting
* - "Unorganized because different members of group doing different things. Talks boring because it wasn't for marks.
* Introduction - "Rudimentary and could have been taught in 35 minutes"
* - "Too basic, tooboring"
* - "All theory about how to research which was already known"
* - "It didn't seem like geography"
* Coasts - "Too much note taking therefore less interesting"

Student perceptions of the use and value of various types of inquiry

Figure 6.3 shows the students' perceptions of the extent to which various types of inquiry activities were undertaken in their course. This graph suggests that the students perceived that they had experienced investigations into problems supplied by their teacher as well as invented by themselves; that they had been asked to be creative, to collect

information in the field and to find solutions to problems; and that they had experienced a range of group work and individual work, both with information provided by the teacher and for which they had to research libraries.

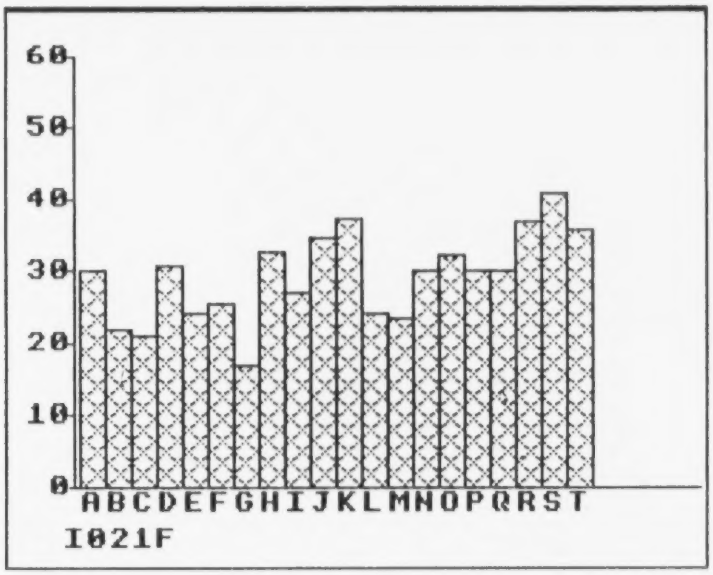

Fig.6.3 Student perception of their experiences of various inquiry types

Figure 6.4 shows the students' perceptions of the value of the various inquiry types. The graph shows that, with the exception of those items to which fewer than half the student group chose to respond, students valued all the inquiry types to a similar degree. Particularly valued, however, were the students' individual projects, field study and investigations in which goodness or beauty could be explored.

The teacher considered that the responses recorded in Figure 6.4 reflected the reactions of the students observed during the course of the semester. Both coasts and rainforests had been considered in the light of their inherent worth and beauty and this had received a positive response from the students. The small amount of work based on 'scientific equipment', reflected in Figure 6.3, and accorded an insignificant valuation in Figure 6.4, referred to some work with quadrats and a leaf litter study undertaken under rainforest, and this was not seen as valuable by the students. The teacher suggested that students in this school particularly dislike listening to lessons, but would rather be active.

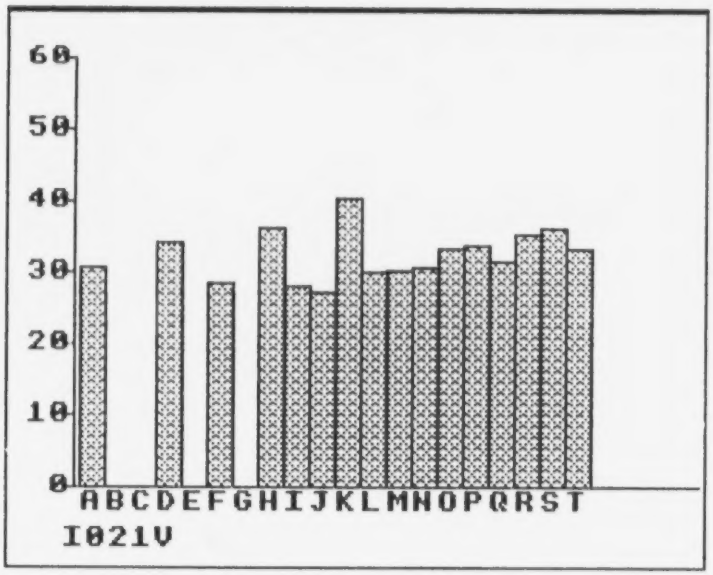

Fig.6.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

Figure 6.5 shows the students' perceptions of the extent to which they used the various sources of information. It indicates that encyclopaedias and field work were seen as the major sources of information, while text books, magazines, videos, statistics and teacher produced worksheets were also of considerable importance.

Figure 6.6 shows the students' evaluations of these resources. These responses show that encyclopaedias, audio-visual presentations and visiting speakers are regarded as of relatively high value, with slightly less value also accorded to text books, magazines, and maps. The teacher stated that most of the resources used during the semester were provided by the teacher. In particular, boxes of relevant materials were removed from the library into the classroom for each topic, and were made available together with worksheets and photocpied materials found by the teacher. For the purposes of the independent project, the library was block-booked for the six geography periods of each week for four weeks.

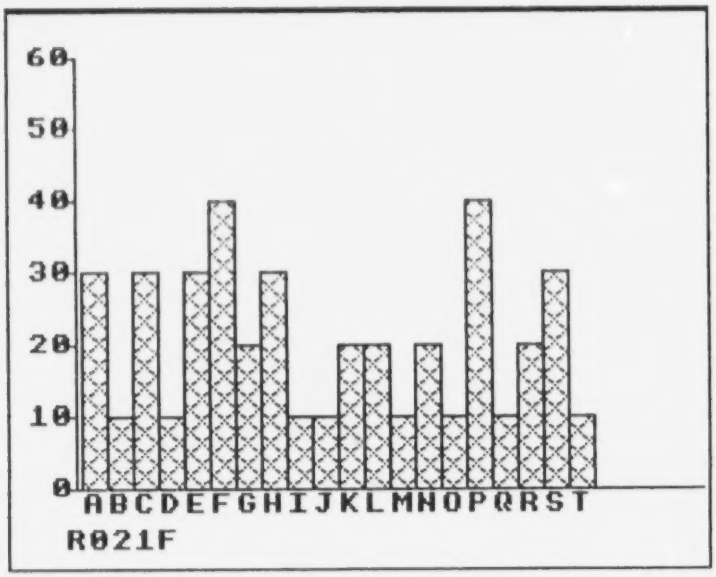

Fig.6.5 Student perception of their use of various resource materials

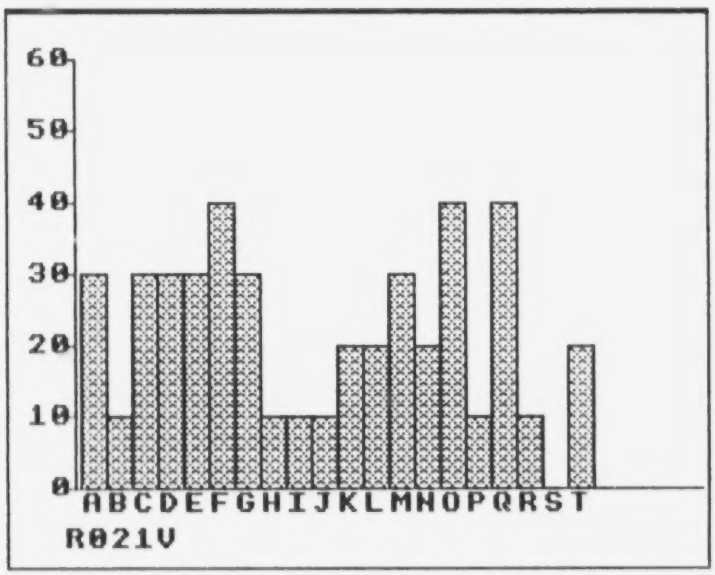

Fig.6.6 Student perception of the value of various resource materials

Figures 6.7 and 6.8 show the students perceptions of the use and value of the basic modes of data presentation. Figure 6.7 reveals that although all the modes were used, diagrams and graphs were seen as being of greater significance. However, while diagrams were also seen as being of greater value, tables of figures were valued more than other modes.

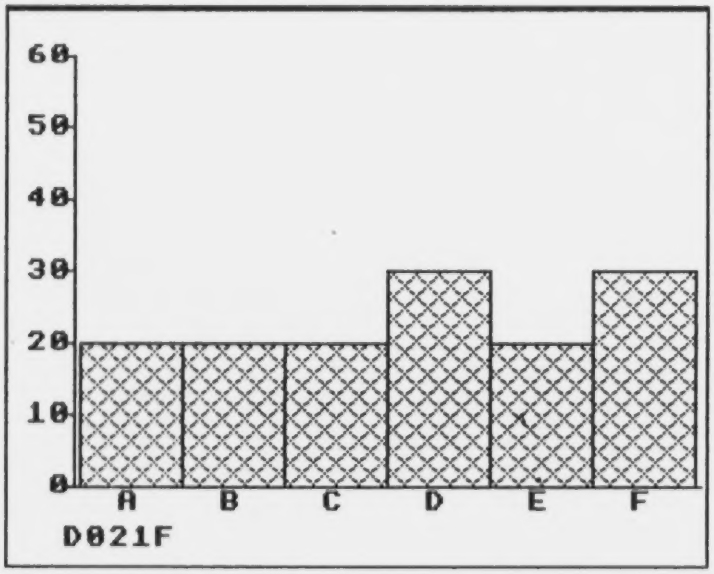

Fig.6.7 Student perception of the use of basic data presentation modes

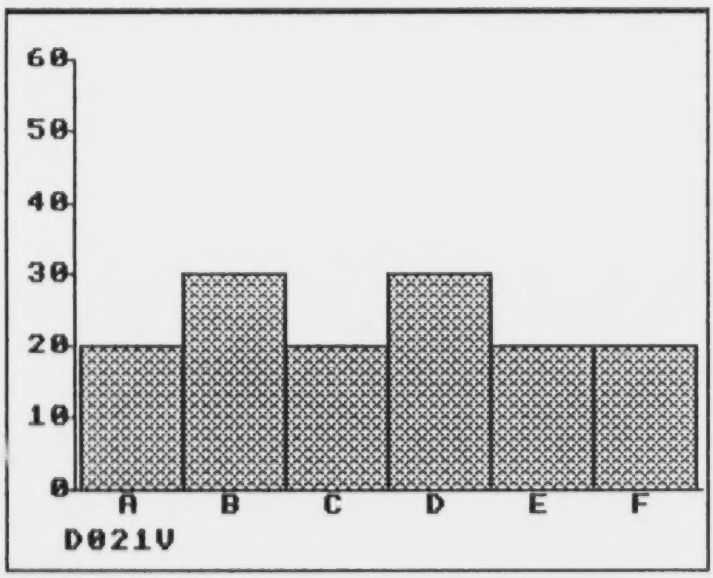

Fig.6.8 Student perception of the value of the data presentation modes

The students' evaluations of AGI compared to their experiences of geography in Grades 8 - 10

Figure 6.9 shows the students' valuation of AGI compared with their geography experiences in Grades 8 - 10. The majority of the students found AGI more valuable, and their comments referred to teaching/learning styles employed and the content studied.

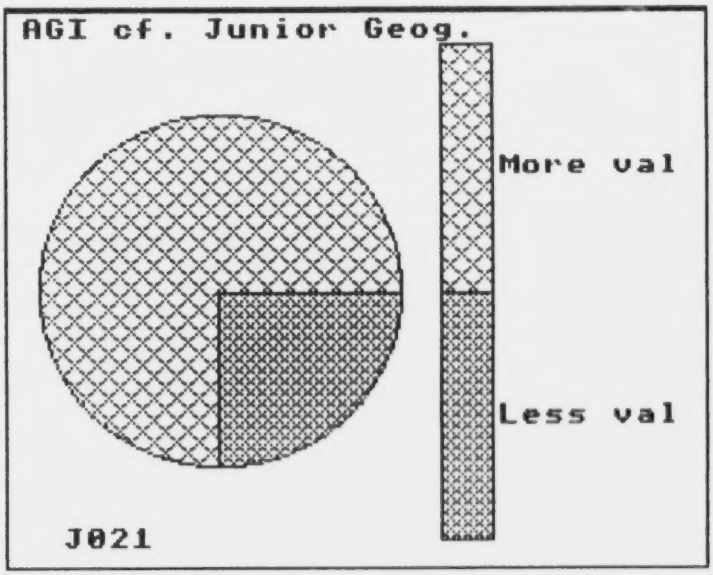

Fig.6.9 Student perceptions of AGI compared with Geography 8 - 10

* "Easier with individual study, less note taking"
* "Learnt how to approach problems and solve them in a logical manner. Learnt to look at all points of view. 8 - 10 was all facts and figures - irrelevant to life"
* "I feel that I have learnt more by private study and inquiry including discussion than by mechanically copying from the board"
* "More involvement and fewer notes on the board"
* "Develops research skills and allows you to explore geography aspects that may not have been offered in a set course"
* "I have learnt more about my country and found it more informative"
* "I enjoyed 8 - 10 more as I like map work and topography"
* "Grade 8 - 11 was enjoyable, now it is boring"
* "Not as interesting - more theory and topics not as good"

Students' comparisons of AGI with other senior geography units

Figure 6.10 shows the students' comparisons of AGI with the other senior units. Once again the majority considered that AGI is of greater value. Half the students offered no comment to justify their decision or made short bald statements such as "not as good as the others". The following have been selected from the comments which were offered.

* "AGI was more relevant to me - issues and ideas that affect me and my values, whereas mapping and contour lines didn't affect me"
* "I enjoyed the independence. Being assessed on something you enjoy of your own choice. A valuable course especially in the second semester of Year 12 - it gives an enjoyable end to the geography course.
* "I have found it exciting to go to geography lessons and it was a pleasure to do any homework that was set."

Those who considered AGI to be less valuable did not generally give reasons for their decision. One student, however, wrote:

* "I enjoy working on my own as I was able to use my own initiative, but I didn't work as hard. I tend to leave it and not do enough research."

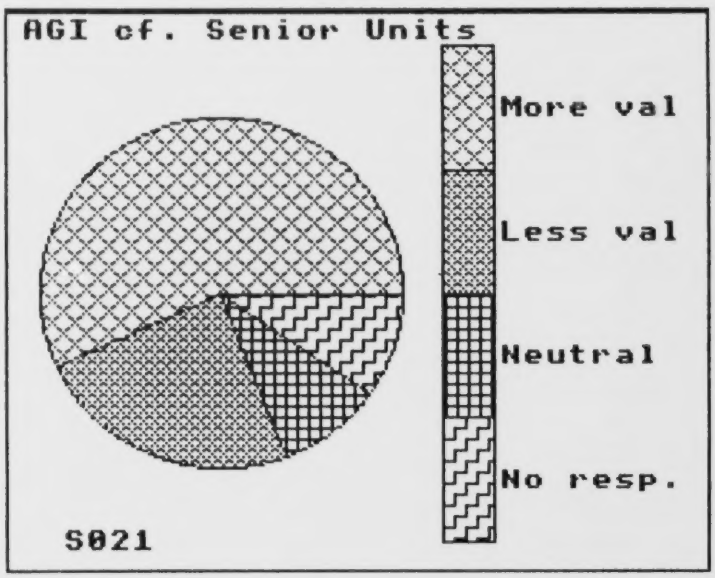

Fig.6.10 Student perceptions of AGI compared with other senior geography units

The teacher's summary comments on AGI

This teacher praised the syllabus document and felt that it presented the intentions of the syllabus designers well. Furthermore, he felt that his course had been successful and valuable. However, he expressed doubts on the fundamental ethos of the AGI syllabus. Firstly, he questioned whether geography is really the best vehicle for teaching scientific method, and secondly, he questioned whether the 'scientific method' is really the most appropriate method to apply to geographical inquiries.

The teacher found the syllabus document to be generally helpful, but when asked specifically about the 'Core and Content Matrix' on page 10, admitted that although it was a useful guide, he thought it should be interpreted in general terms rather than regarded as prescriptive.

This teacher interpreted the references to 'the full range of inquiry processes and skills' (page 10) as relating to the different types of resources which students may be expected to encounter - eg. print, audio-visual, field, full library, statistical, graphic. In retrospect, he felt that too much of the work was based on secondary sources, and regretted that only a few students used questionnaire, survey and other primary sources in their independent projects. However, he considered that both the topic under discussion and the strengths and weaknesses of the students should be taken into consideration when deciding on the skills to be developed. As an example, the teacher suggested that some students following senior geography would have found great difficulty in drawing a cross-section from a topographical map successfully.

The teacher commented on an improvement in the teacher/student relationship in the AGI semester but was uncertain whether it should be attributed to the AGI course, the field work component or to the final semester of the senior course. He commented that although the majority of students had appreciated the AGI course, some other students had hated it. The teacher himself had not enjoyed the course as a whole, although he accepted that there were many good points in it. He explained that his own preference would be to integrate more inquiry techniques into existing units which are more firmly based on geographical concepts.

The Assessment of AGI

The AGI course was assessed by five instruments. These were three tests of data response questions, a written report on field work and the students' own inquiry project report and oral presentation.

The teacher found that some of those students who had always worked hard and had succeeded at tests of content knowledge found the data response format difficult. On the other hand, students with greater ability in data analysis and interpretation were able to achieve high marks for the first time. The former students were, however, able to demonstrate their abilities in the independent study.

The final assessment for AGI did not reveal a markedly different pattern to that of any other unit.

The teacher's advice to those wishing to adopt the AGI unit

The teacher hoped that the AGI course would go forward for general implementation. He considered that those teachers who were already using inquiry methodology in their classes would probably handle the course best, but its existence would encourage other teaches to explore the possibilities of inquiry perhaps for the first time.

For those who have no experience of inquiry teaching, he suggested that the topics should be prepared well in advance and geared closely to the resource-base of the school. Other teachers were regarded as a prime source of resources, while newspapers, government agencies, community groups and the Geography Teachers' Associations were also mentioned. Public libraries were described as being generally weak and new teachers

were warned about referring students to this source as it had been found to lead students to frustration and disillusionment.

Assessment should be limited to no more than three items, of which one could be a data response test to test a wide range of skills. The individual assignment was recommended as being especially valuable. Inquiry-based exercises such as those prepared by the English 16 - 19 Geography Project and demonstrated by its Director, Mr Michael Naish, at a G.T.A.Q. sponsored seminar in Brisbane during 1985, could also be used to test students' command of inquiry processes.

This teacher was prepared to consider giving students a choice between Man and Environment and AGI, having described the advantages and disadvantages of each. He was not prepared to commit himself as to whether AGI should be limited to those of higher ability.

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SCHOOL SEVEN

SCHOOL SEVEN

The teacher and the class following AGI

In this state high school, AGI is being taught for the fourth consecutive year by the Geography Subject Head. This teacher holds a Masters degree and a Diploma in Education, and has had 24 years of classroom experience.

AGI is taught in Semester 2 or Grade 12 and follows units in Economic geography, Development and Physical geography. The class size was 16 and only 3 students had not followed geography in Grades 8 - 10. The teacher suggested that the number of students opting for geography in the senior years is limited by its placement against mathematics in the prevailaing line system and the rise of more "fashionable" subjects. The teacher regretted the lack of any insistence that students should take one of the social sciences, and suggested that ancient history and drama were regarded as new and exciting compared with geography. He also considered that he was regarded by students as being "an old fashioned disciplinarian" and that this was a negative factor in students' perceptions of geography,

The teacher's view of AGI

This teacher regards the AGI course as being primarily a course on the geography of Australia. Inquiry methodology is adopted in this study, but there is at least one inquiry unit incorporated in every semester from Grade 10 onwards. He commented that the geography of Australia was given insufficient emphasis elsewhere in the syllabuses, although physical geography was given an Australian emphasis. Accordingly, AGI provided an opportunity to correct this lack, while also providing an appropriate concluding unit for exit-students.

The topics chosen and the methods of approach

The topics selected for AGI form a series of discrete inquiries. In constructing his work programme, the teacher had, firstly, tried to include a number of small inquiries designed to give students experience in data manipulation. Secondly, he had included a physical, an economic and a social inquiry. Thirdly, he was mindful of the need to include inquiries at the local, state and national scales. Finally, he had encouraged students to contribute to the topic selection process. In the latter case, the teacher commented that the students had repeatedly suggested topics which were either non-geographical or too big to be handled in the time available, so in many cases the students had voluntarily abandoned their own selected inquiries, while in others he had found it necessary to overrule their suggestions.

The topics finally selected for study were:

1. Introduction
2. A series of short inquiries on Australia's climate:
    a) What are Brisbane's 10, 50 and 90 rainfall percentiles?
    b) What is Brisbane's rainfall variability?
    c) How bad is the present drought?
    d) What is El Nino?
    e) What was the rainfall pattern of Briabane in 1985?

3. 'Rainfall controls Australia's sheep and wheat industries. What is produced, where is it produced, how much is produced?
4. How important is coal to Queensland?
5. Own choice inquiry / How important are Brisbane's road bridges?

The introduction was limited to a lesson or two in which the teacher talked about the nature of inquiry. The short inquiries included structured and guided statistical exercises, some of which involved the use of a computer, map completion activities and library research. The study of wheat/sheep began with a class discussion of the title quotation and students were then required to make a written response having investigated the topic in the library. Queensland coal was approached with less teacher guidance other than a class discussion on the meaning of 'important' and the students were then required to produce a series of explanatory maps in response to the question. The own choice inquiry was rejected for all but three students as the students were perceived by the teacher to be selecting non-geographical topics. These three students later abandoned their own choices. The bridge investigation was then introduced and all students agreed to participate. The study was based on Mains Road Dept. statistics and a day in the field collecting data on traffic flows and the analysis of the immediate hinterlands of each bridge from the CBD to the Bay.

The teacher's perception of the success of these inquiries

The teacher considered that the bridges inquiry had been the most successful. The students reacted well to the field work and analysed both their own and the Mains Roads Department's data on a range of criteria and with a variety of presentation methods.

The least successful topic was the consideration of the statement "Rainfall controls Australia". The teacher considered that many of the students accepted the statement as true and failed to realize that they could and should question it.

The students' perceptions of the inquiry units

Figure 7.1 shows which topics the students regarded as most valuable to them. While about a quarter of the class agreed with the teacher's perceptions, the majority of the class regarded the inquiry on coal as having been most valuable.

The students' justifications for their choice reveal an emphasis on new content knowledge, especially related to Queensland. Comments included:

* Coal - "It showed me how important coal is and revealed interesting facts"
* - "It gave in depth information about Queensland's exports and employment - interesting because it was about our own state"
* - "A chance to learn about Queensland's outback which is interesting"
* - "This was most interesting as I had to construct an informative map. This meant a reliance on geographical skills"

* Bridges - "We got to go around Brisbane and learnt a lot about it and its history"
* - "The most interesting topic. I have learnt a few new things of interest"
* - "I now know which bridges to use to go to certain areas of Brisbane. Before, I was really in the dark"
* Wheat/sheep - "It dealt with the backbone of Australia and so was an insight into our dependence on this particular industry"
* - "I happened to do more research on this topic and gained more information. I learnt more about the wheat/sheep industry

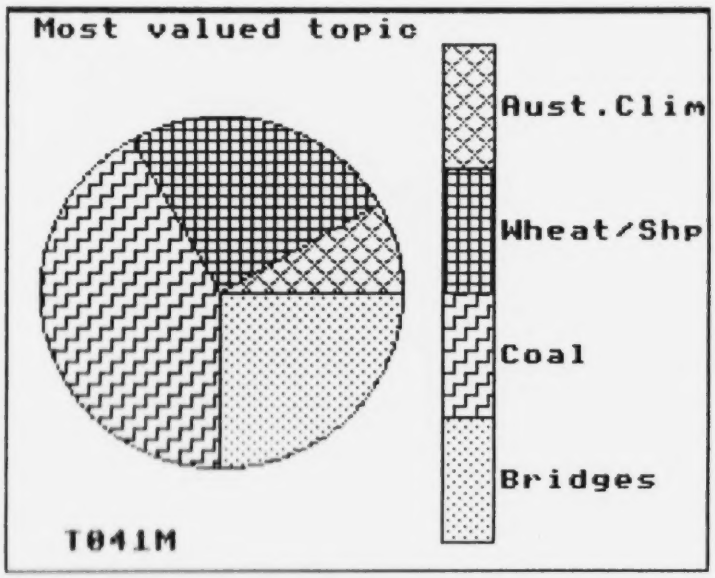

Fig.7.1 Students perceptions of the most valued topics in AGI

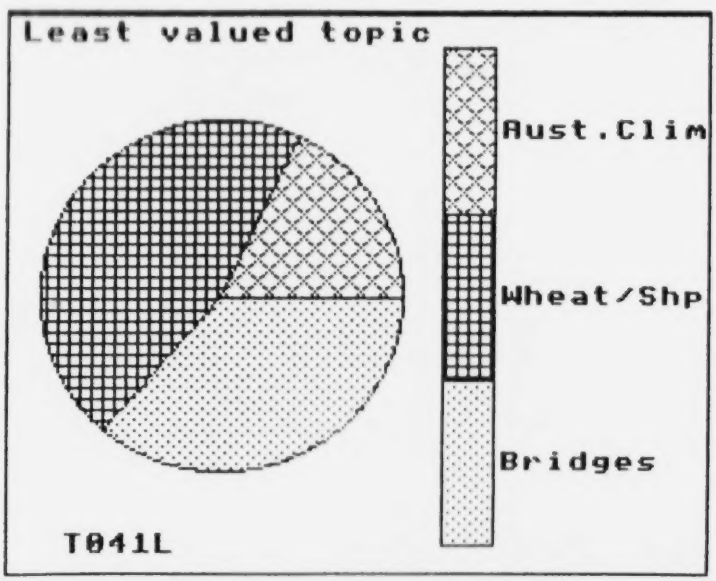

Fig.7.2 Students' perceptions of the least valued topics in AGI

Figure 7.2 shows that the Wheat/sheep and Bridges topics were selected by the majority of students as having been of least value. Student comments concentrated on the perceived relevance of the topics, their interest in the topics and the amount of work involved. A selection of comments follows:

* Wheat/sheep - "boring, not relevant, and didn't do much for me"
* - "It had little or nothing to do with me. It gave me little in a useful way"
  - "There was too much to include which we were unsure if it affected this theme. It was tedious boring work"
* Bridges - "not interesting, not a great outlet for my geographical skills"
* - "Irrelevant - while I realize and appreciate their importance, I didn't feel it warranted study in any depth"
* Aust. Climate - "Uninteresting and difficult to learn from"
  - "I didn't get much out of it knowledge-wise"

Student perceptions of the use and value of various types of inquiry

Figure 7.3 shows the students' perceptions of the extent to which they experienced the various types of inquiry and Figure 7.4 shows their evaluations of those inquiry types.

The responses to this section suggest that students were particularly aware of the field work and library based components of the course, in which the teacher created the work and was then available to help when required. The students appear to recognize inquiry type A - problem solving - more that might be expected from description of the units.

Figure 7.4, which shows the students' evaluation of the various types of inquiry, suggests a modest enthusiasm for a limited range of strategies.

The teacher examined these responses in the light of his management of the AGI class and found that the students ' perceptions generally reflected his own approaches. He confirmed his belief that 'what is' should be given greater emphasis than 'what should be', and stated that he considered that 'feelings' belong elsewhere in the school curriculum than geography. He did not accept that he had provided all the resources as suggested in Figure 7.3 by the students' reactions to Inquiry type Q. However, he stated that it was his policy to write to selected firms and organizations on behalf of the class on school headed notepaper and that this information was then made available to the students. He confirmed that students could work together on an inquiry, but not as groups. Finally, while accepting that students valued library research, he recorded his concern that such activities can waste much time.

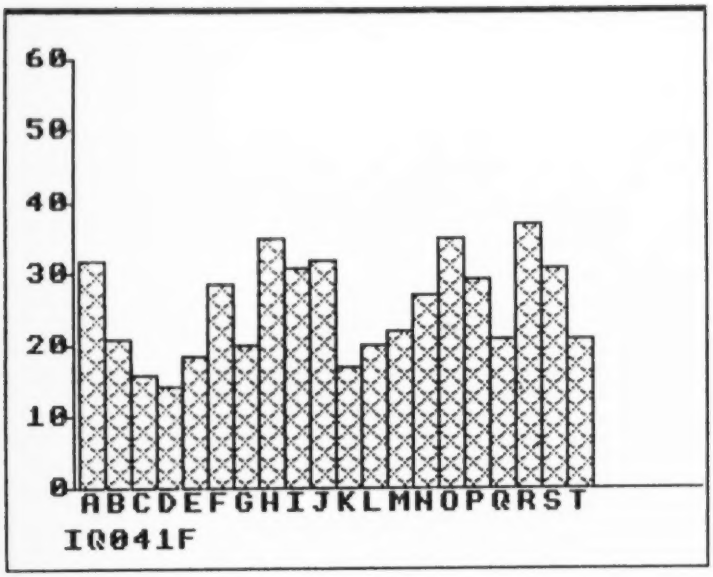

Fig.7.3 Student perception of their experiences of various inquiry types

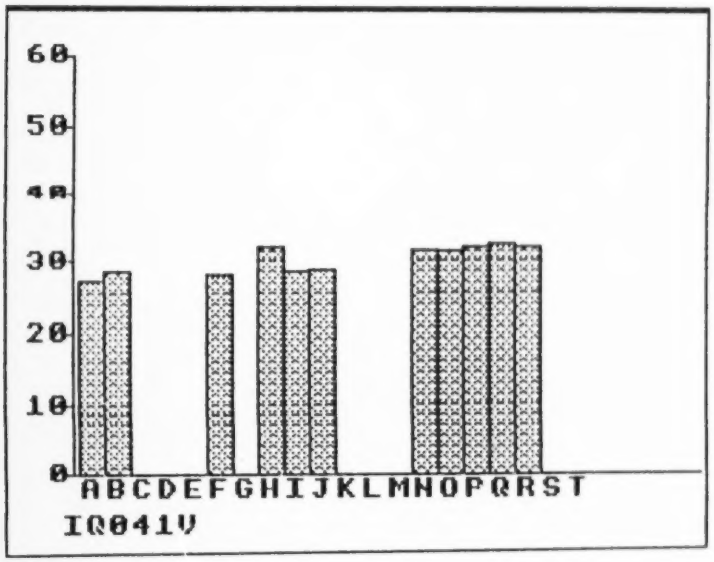

Fig.7.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

Figures 7.5 and 7.6 show the students' responses to questions about their use and valuation of various resources. Students appear to have placed their greatest reliance on photocopied information, statistics, and handout materials from industries and the government, although they have not been exposed to the materials produced by community and other such groups. This was attributed by the teacher to the topics chosen which were not seen as being part of the domain of any of the community groups. Magazines and encyclopaedias were also seen as having been major resources, as were school text books and topographical maps. Surprisingly, atlases appear not to have been used. The teacher considers atlas maps to be less useful and relevant than other types maps

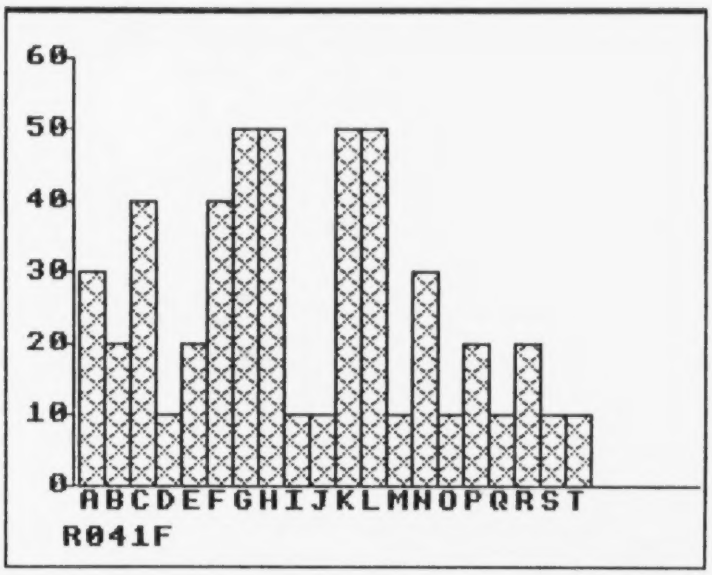

Fig.7.5 Student perception of their use of various resource materials

Figure 7.6 shows the students' evaluations of these resources. The students gave their highest valuations to the teacher's photocopied materials, statistical information and handouts from industry and government. Despite the lack of such material in their course, they expressed a high valuation for community group material. It is perhaps significant that while field work and visits out of school were regarded similarly in terms of frequency, only visits were accorded a significant valuation. This may reflect the students' perceptions of the activities undertaken during the investigation of the bridges.

The teacher explained that while all basic resources for the course were provided for students, in as near primary form as possible, extra information was the responsibility of the students themselves. Materials from outside agencies, such as the Bureau of Mines, was requested by the students and the teacher then wrote to obtain it.

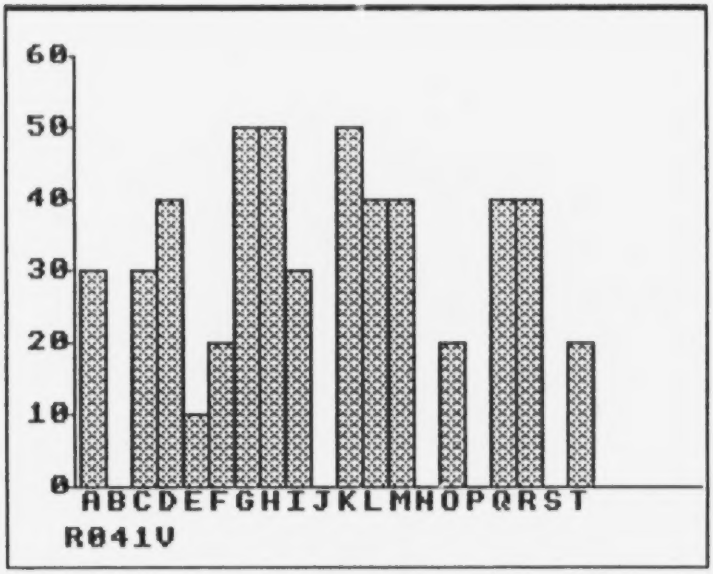

Fig.7.6 Student perception of the value of various resource materials

Figures 7.7 and 7.8 show the students' perceptions of the use and value of the basic modes of data presentation. They suggest that while all the modes except photographs were used to a considerable extent, the students valued photographs as highly as all other modes except graphs.

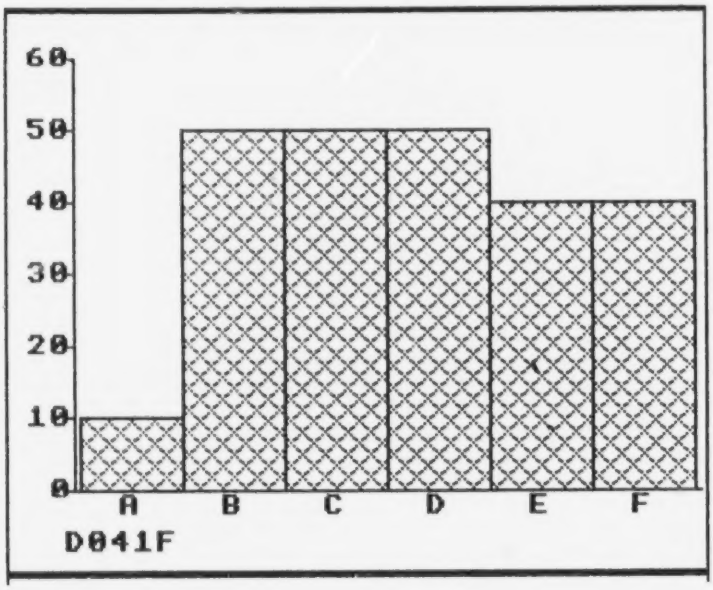

Fig.7.7 Student perception of the use of basic data presentation modes

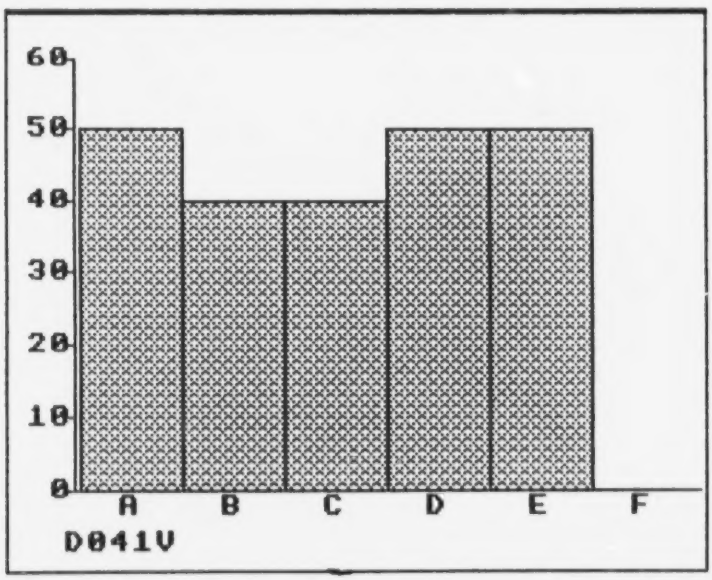

Fig.7.8 Student perception of the value of data presentation modes

The students' evaluation of AGI compared to their experiences of Geography in Grades 8 - 10

Figure 7.9 shows how the students regard the AGI course when compared with their earlier geography experiences in Grades 8 - 10. Most of the students regarded AGI as being of greater value to them. However, in their comments they revealed a concern for the complexity of the course and the amount of work expected.

* "There is less writing and much less study to do. Overall very good"
* "Geography lessons in 8 - 10 very basic and practical. This is more interesting as I am using my skills to the full"
* "8 - 10 less interesting but more practical. AGI is hard and time consuming"
* "Good in so far as it allowed you to utilize your own abilities but bad as it left the major burden on your shoulders without teacher's help
* "I hate AGI. 8 - 10 was set out in units easy to study as we were taught things in class. AGI - we're not shown how to do it, what to include. It interfers with study time of other subjects at home"
* "I enjoy inquiries but other types of geography should be included as well"
* "On Australia and the local area therefore more interesting. But I found myself becoming a little lazy in class knowing that the assignment was due in, say, four weeks time"

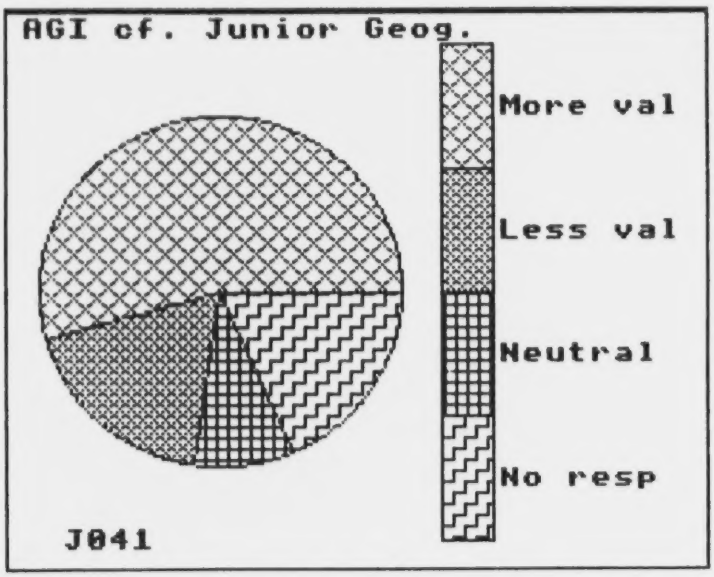

Fig.7.9 Student perceptions of AGI compared with Geography 8 - 10

Students' comparisons of AGI with other senior geography units

Figure 7.10 suggests that there appears to be more enthusiasm for AGI when compared with other senior units than there was when it was compared with the junior course.

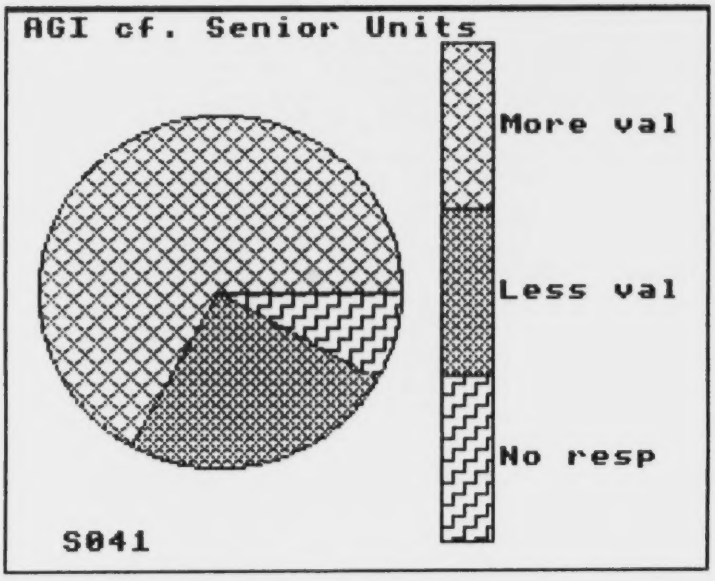

Fig.7.10 Student perceptions of AGI compared with other senior geography units

* "Others are a repeat of 8 - 10 units in more detail. AGI is stimulating as I am using my skills and developing research talents"
* "More relevant and useful than the social geography previously studied"
* "More relevant topics than focussing on some way out subsistence farm in South America"
* "It is more interesting reading and learning about Australia than other parts of the world"
* "I don't feel that I am learning anything - boring because such protracted lengths of time spent on each question."
* "I prefer to study information rather than collect it. However, I preferred to study Australian topics"
* "Much worse as other units are studied in class with teacher's help instead of relying on our limited knowledge of what we studied in AGI"

The teacher's summary comments on AGI

When asked to comment on the syllabus definition of inquiry, the teacher commented that he had not found it very helpful, However, the seminars which had been conducted by Dr. Bernie Cox had been of great value in helping him to formulate his ideas. The theoretical papers were regarded as a repetition of the seminar and so were not used. In writing the work programme, the teacher had found little problem with the syllabus document and commented that he preferred to "look for a statement I can work with and ignore the rest". He was happy that his work programme reflected the spirit of the syllabus document.

In interpreting the syllabus intentions regarding the 'full range of inquiry processes and skills', the teacher concluded that the study of each topic area should be exhaustive in terms of the geographical analysis. He did not accept that different process and skill abilities should be developed in different topics.

The school work programme makes no attempt to take differences in interests and aptitudes of individual students into account. The teacher will try to help individuals but feels that assessment must be fair and that all students must be judged on the same criteria and amount of help received. He did not note any difference in student response to the AGI course which could be attributed to student ability or character, but considered that AGI was more popular with all students than the other units in senior geography. He also commented that the relationship between teacher and students was more relaxed and personal than elsewhere.

Assessment of AGI

Each topic of the AGI course, with the exception of the introduction, was assessed by written report, and in addition, there was a final examination which carried 40% of the total assessment marks. This examination was an open book examination, based on data response and essay questions. In all their work, students were judged on the currency and accuracy of their data, their ability to "argue a good point" and their ability to present their findings in a variety of ways.

The teacher's advice to those wishing to adopt the AGI unit

This teacher considers that the senior geography course needs an Australian studies unit with inquiry enshrined in its title. He regarded AGI as an ideal 'climax course' and advocated its use in assessing senior geography courses as it should represent the 'latest and best' work presented by students.

He suggested that the syllabus document should be made more accessible to all teachers by removing the prescriptive elements and allowing teachers greater freedom. However, he warned against making AGI a unit with too great an emphasis on conservation, and objected to what he described as the 'Don't use it, we might lose it' mentality. He wanted to see more 'balance'.

In constructing the work programme, he advocated that a "balance" be maintained between the various divisions of AGI outlined in the syllabus document: Australia/Geography/Inquiry; Local/State/National and Physical/Economic/Social geography.

For teachers beginning to teach AGI, emphasis should be placed on collecting primary source materials such as year books and statistical summaries. In addition, newspapers and magazines were regarded as major sources of up-to-date information. Although topics should generally be based on available resources, the teacher commented that 'resources are available on anything'.

The teacher was happy with his present assessment methods, but emphasized that examinations should be open book and data response rather than test students' recall of content information.

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SCHOOL EIGHT

SCHOOL EIGHT

The teacher and the class following AGI

In this state high school AGI was being taught for the fifth year, with the present teacher having taken the course for the last two years. She is a graduate geographer with a Diploma in Education who has had 11 years of classroom experience.

AGI is taught in the final semester of the senior years and follows units in Geomorphology, Settlement and Economic geography. Of the 26 students in the class, some two-thirds had not followed geography in Grades 8 - 10, and of these several had not studied geography in Grade 11 either. There are a number of institutional constraints on students following geography at senior level, including its placement against ancient history for those students with a leaning towards arts subjects and physics for those students who wish to follow sciences.

The teacher's view of AGI

In the opinion of this teacher, AGI is primarily a course in Australian geography, although she accepts that it should be taught by inquiry methods. She felt that the advantage of placing AGI in Semester 4 was that it made this last semester seem different to students and so helped to maintain motivation. The original reason for the semester placement of AGI was to replace the Man and Environment unit and to ensure that students left school 'feeling good'. For both reasons it was felt that this decision has proved to be correct. The teacher suggested that if the emphasis in AGI were to be on inquiry, then it should perhaps be taught first in Grade 11. but pointed out that many students entered Grade 11 lacking the skills of geography and that therefore these skills needed to be taught in other units prior to AGI being attempted.

The topics chosen and the methods of approach

The topics chosen for AGI were taken from those originally selected for the Man and Environment course for which resources were already available and to avoid any duplication of topics taught within other senior units. Students had been required to pay a text book levy throughout the school and so the use of text books in this course was considered to be important. The topics chosen for study were:

1. Introduction
2. Weather/climate and where I fit in (including a detailed study of cyclones)
3. Droughts
4. Wilderness areas of Australia and its management
5. Kangaroos
6. Coastal areas
7. Independent study

An attempt had been made to integrate the topics together and two groups had emerged. Firstly, the units on weather, climate and droughts

were associated together as the Subject Head believed that students should not leave school without detailed knowledge on this topic. Secondly, the units on coasts, wilderness areas and kangaroos were regarded as contributing to environmental awareness.

The introductory unit of one week included work with videos of detective stories before the students were introduced to a sequence of steps defined in the school work programme as 'the inquiry process'. This process begins with 'Identifying the problem' and 'Defining or clarifying the issues as it appears' and proceeds through 'Formulating the hypothesis' to 'Problem solving' and 'Making value judgements'.

From this point, each inquiry was pursued within the guidelines of the work programme which included detailed lists of content knowledge with suggestions on the questions which students should investigate. The study of coastal areas included a field study visit to North Stradbroke Island.

For their independent study, students were required to investigate a conflict chosen by themselves and propose a solution.

The teacher's perception of the success of the topics

The teacher nominated the weather/climate topic as being of most value for the students since she perceived them to have had little knowledge on the topic when they began. However, she also mentioned the Stradbroke Island visit as it touched on many issues which the students thought were important while she acknowledged that the independent study was the high spot for many students.

Least successful from the teacher's point of view were the units on droughts and kangaroos. She regarded the drought unit as unsuccessful since it followed a long period of study on weather/climate and included much detail and many statistics. The unit on kangaroos was not perceived as of personal relevance by many students, while the study itself included an overload of text. This unit followed the study on wilderness and the teacher felt that to go straight on to a study of kangaroos represented 'overkill'.

The students' perceptions of the inquiry units

Figure 8.1 shows that the units on weather/climate and coasts were perceived as of greatest value by the students, although all units except the introduction were regarded as 'most valuable' by at least one student. The comments offered by students in justification of their choices emphasized the perceived relevance of the topics and the extent to which they had acquired factual knowledge. The pleasures of work out of school were also influential. A selection of student comments is given below:

* Weather/climate - "A more day-to-day topic we could relate to"
* - "Enjoyable and dealt with things I was interested in. It dealt mostly with facts"
* - "More relevant and I learnt more in it than in anyof the others"

* - "Most relevant to hobbies and activities"
* - "I can see practical applications of this unit in the future"
* Coasts - "It was a good topic as we went to Stradbroke Island and got the information first hand"
* - "This theme was valuable to me as we could actually go out and study the coastal areas. It was interesting so it increased the incentive to learn"
* - "You could do practicals and field trips which helped explain the situation and made it more interesting"
* - "Relevant, interesting, an area we should be aware of"
* Droughts - "I found it interesting and feel that we should be aware of the situation and how frequent it is in Australia"
* Independent study - "It gave me the opportunity to enquire into something which I believed was a problem"
* - "More demanding and therefore more involvement could be attained"
* Kangaroos - "As I was raised in the bush on a property in NSW I grew up with these marsupials and was always fascinated by them. I have found out much more about them which I found to be most interesting"
- "I used to live in the bush, among nature, and had my own pet kangaroo. One day some roo-shooters broke into our property and killed all the roos, including my pet. Ever since then I have been interested in roo populations"

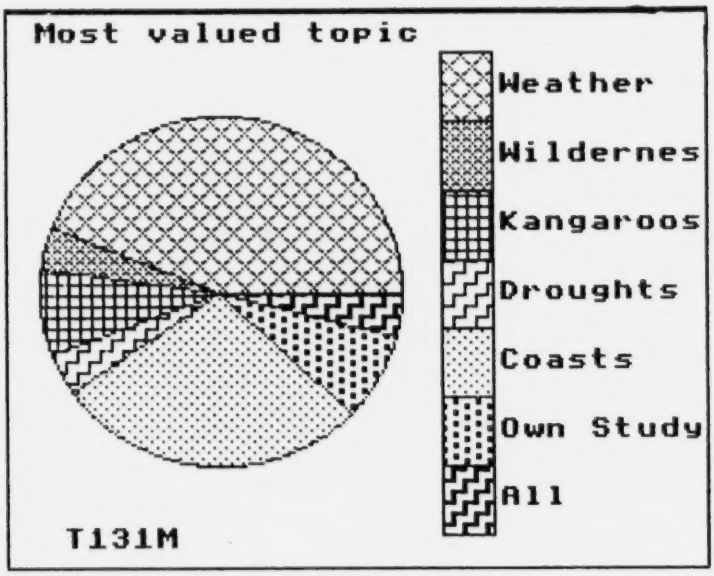

Fig.8.1 Students perceptions of the most valued topics in AGI

Figure 8.2 shows that the kangaroo study was the least valued by these students. The students' justifications for this choice emphasised the irrelevance of kangaroos to their lives. Similar negative feelings were expressed about wilderness areas. The teaching methods employed also

received mention and appears to have influenced students' perceptions of the topics.

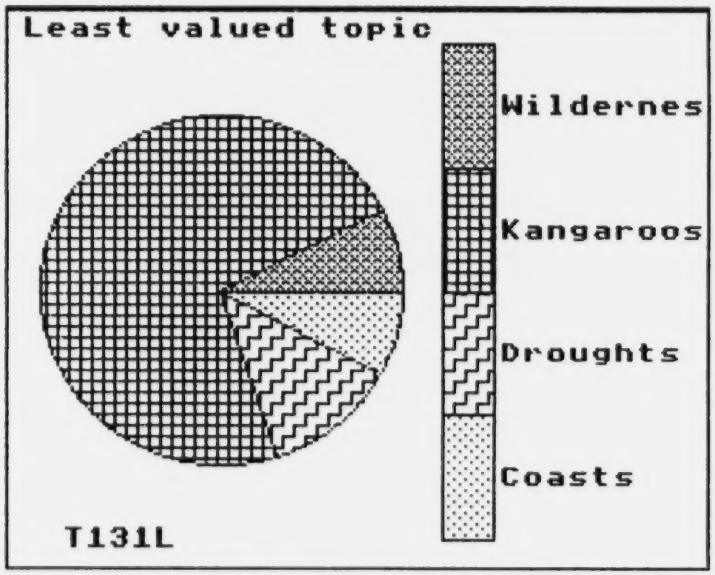

Fig.8.2 Students' perceptions of the least valued topics in AGI

* Kangaroos - "Of little relevance if I was to use geography in my career at all"
* - "Not interesting at all. The topic dealt with, to us, very abstract material. There was no way to apply the data"
* - "We just got the information from sheets and it was boring"
* - "I do not consider it a very important aspect of geography, particularly as we are not close to where they are being slaughtered or conserved."
* - "I do not see that kangaroos concern me or influence my life"
* - "No-one knows kangaroo numbers in Australia. This topic was irrelevant and study could not be completed wthout accurate data"
* - "Material given made the course very difficult. The information seemed very irrelevant"
* Coasts - "it was least valuable because I'd heard it all before"
* - "Coming from the bush, my life did not involve any area of coastal activity. Because I knew nothing about it, I found it hard to learn things in this area and consequently did not enjoy it"
* Wilderness - "All topics were valuable but personally not being interested in it, it comes out bottom.It gave me a better idea of wilderness areas"
* - "A lot of important information was left out"
* Drought - "I lived in the outback in my younger years and learnt much about drought. Therefore I find this unit less valuable"
* - "Went on too long. it was quite easy to learn, but I felt it

could have been made more interesting if it had related to specific previous droughts"

Students' perceptions of the use and value of various types of inquiry

Figure 8.3 suggests that these students were used to working alone on problems posed by the teacher either on materials supplied to them or in libraries. They reacted positively to field work and acknowledged that they had selected some of the problems into which they inquired for themselves.

Figure 8.4 shows the students' valuations of these inquiry types. Although all the types were regarded as valuable, these students accorded problems of their own selection the highest value, together with creating novel solutions, undertaking field study and working alone to produce a report. No experimental work was undertaken.

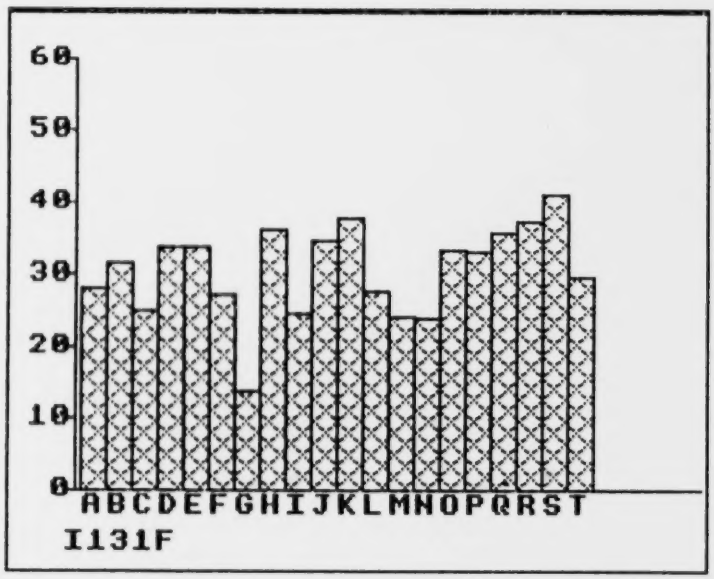

Fig.8.3 Student perception of their experiences of various inquiry types

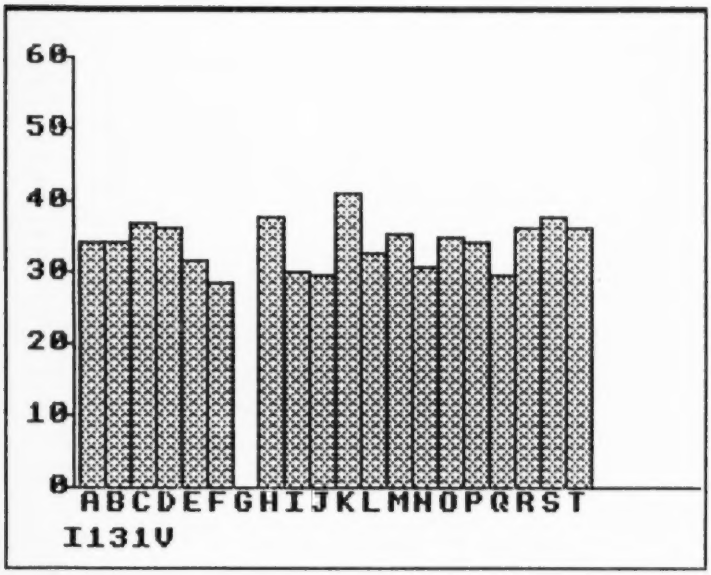

Fig.8.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

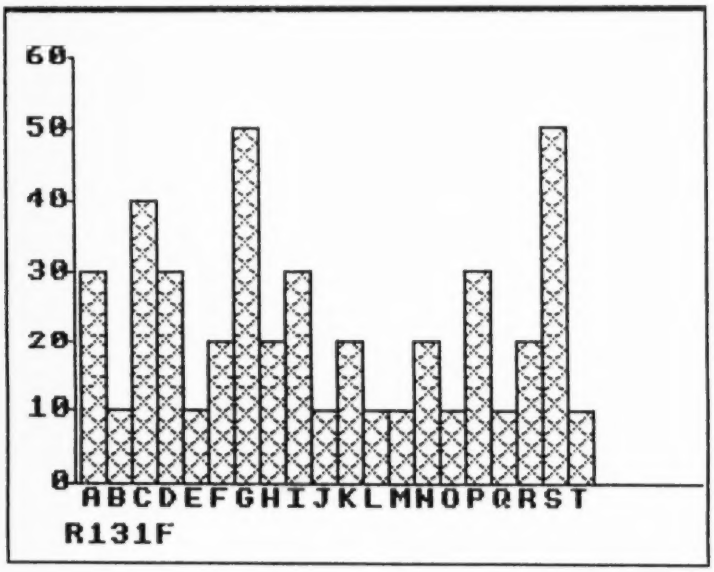

Fig.8.5 Student perception of their use of various resource materials

Figure 8.5 shows that for these students, AGI involved a great use of photocopied materials and teacher produced worksheets, although text books, atlases, a/v materials and field work also made a marked contribution. It would appear that much of this material provides secondary sources rather than primary sources of information, while in addition, much appears to have been prepared especially for student audiences.

Figure 8.6 reveals that the students valued the teacher provided photocopied information highly, while also valuing industry and government publicity and information materials, visiting speakers and visits out of school. The discrepancy between the responses to field work and visits out of school may represent the students' perceptions of the activities undertaken during the visit to Stradbroke Island. Public domain materials do not appear to have been used greatly in the teacher-directed inquiries, and the students high valuation of such materials may emanate from their own individual projects.

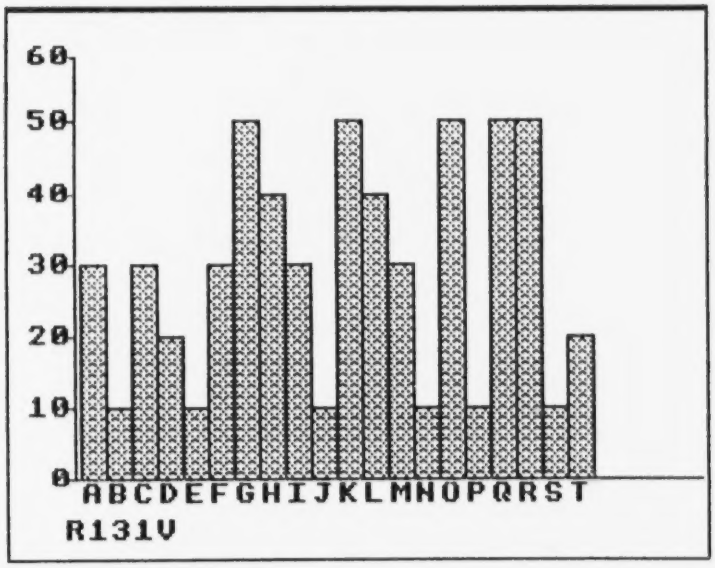

Fig.8.6 Student perception of the value of various resource materials

Figures 8.7 and 8.8 show the students' perceptions of the use and value of the basic modes of data presentation. These Figures suggest that while photographs were used rather less than the other modes, and diagrams and maps were used rather more, the students regarded all the modes as of similar value except graphs to which less than half the students responded.

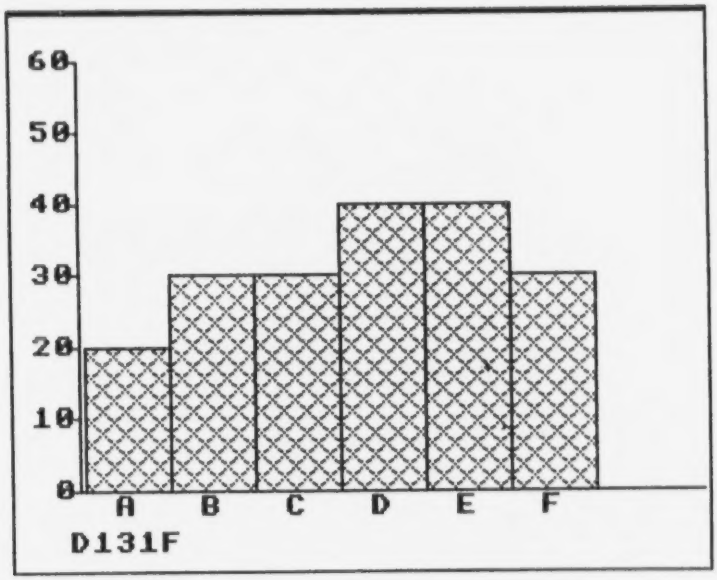

Fig.8.7 Student perception of the use of basic data presentation modes

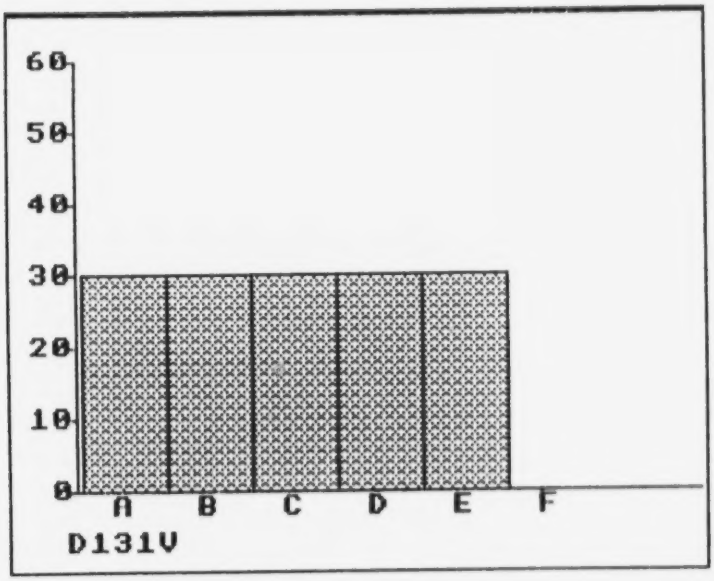

Fig.8.8 Student perception of the value of the data presentation modes

The students' evaluations of AGI compared with their experiences of Geography in Grades 8 - 10

Figure 8.9 shows how the students compared AGI with junior geography, although it must be remembered that many students had not followed geography classes in Grades 9 and 10 at all. Their comments and responses were therefore made on the basis of their memory of Grade 8. Nevertheless, a majority of students recorded a preference for AGI, although the majority was not large.

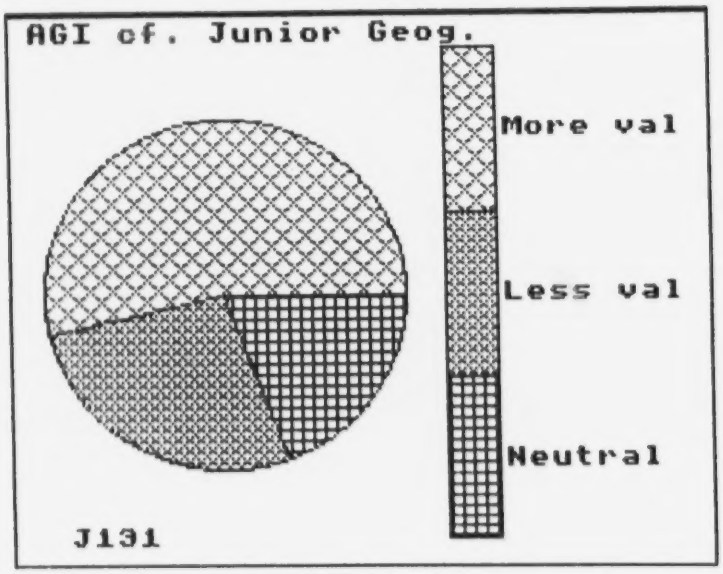

Fig.8.9 Student perceptions of AGI compared with Geography 8 - 10

In their comments in this section, the students concentrated almost exclusively on the teaching/learning methods involved. Those who preferred AGI emphasized their preference for the opportunity to make their own input to the course, while those who preferred the junior course stressed their confusion about the course expectations. A selection of comments from both points of view follows:

* "I preferred 8 - 10 because I like to deal with specific facts"
* "The lessons were filled with lots of information but at times it was difficult to do anything with the information, while in Grade 8 we were given things to do with the data"
* "It was harder in that it was harder to understand exactly what was wanted"
* "In AGI you have to answer a lot of questions and the answers are not given exactly to you. This means that if you find a question hard to understand, or lack general knowledge, it is harder to do"
* "This unit makes us think by ourselves and shows us whether or not we would truly make good geographers. In other units we were only given the facts"

* "I believe that this year has been a turning point in my life as the Geographicl Inquiries have guided me to a new area where I believed my future will lead. This year has definitely been the most outstanding and interesting in terms of geography"
* "8 - 10 student involvement was minimized. In 11/12 students required to put in more effort and therefore the course was more interesting"
* "Involves a lot more work for the student, however, it is good as it shows us what it will be like if we go on to further study"

The students' comparison of AGI with other senior geography units

Figure 8.10 shows that slightly less than half of the students rated AGI as more valuable than their other senior geography units. However, it should be noted that of the rest, the majority were either neutral as between the units or preferred not to respond to the question.

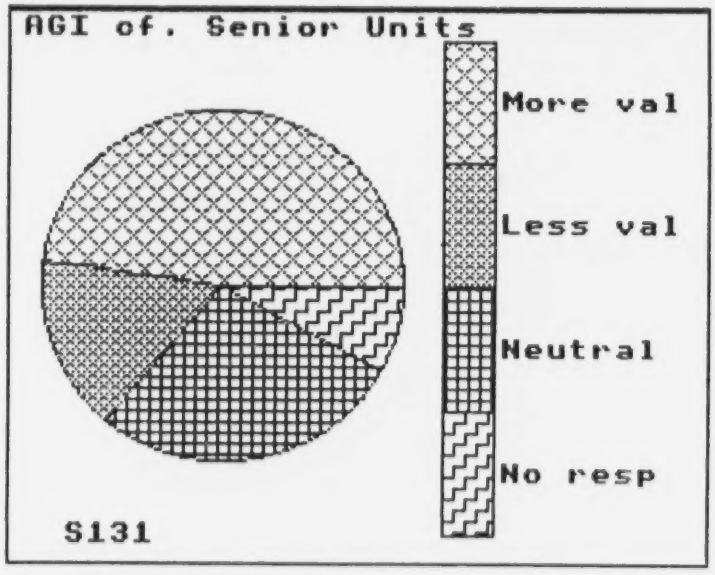

Fig.8.10 Student perceptions of AGI compared with other senior geography units

Student comments in support of their decisions referred to the relief of not learning text book materials, while expressing concern at the lack of specificity in the work. Many students referred to an overload of worksheets.

* "This was the most enjoyable of the 4 semester units. It allowed me to develop my inquiry skills throught grass roots data rather than researching from text books"
* "I feel that it relies too much on your own knowledge instead of teaching you new material. You would have to do a lot of research and there isn't the time available to put much into each topic as well as concentrate on other subjects"
* "It was a pleasant change to do the AGI course instead of doing

continuous text book work"

* "I didn't like its vagueness. Not having set material to refer to made it very difficult. The assignments required special skills and knowing if you've grasped these was impossible until you have either passed or failed. More continuous assessment would be good"
* "It was more interesting and easier than landforms or planning. Economic geography was the pits, so compared with these topics it was good - tho' it wasn't the most interesting thing I've ever done in my life"
* "Its more relevant to us but there were too many sheets"
* "I have enjoyed it immensely compared to other such courses and I believe it has more educational value"

The teacher's summary comments on AGI

This teacher, and the Subject Head who was present during the discussion on which this report is based, considered that the emphasis of the AGI syllabus document is inappropriate. They suggested that the emphasis should be on Australian geography with a recommendation that inquiry methodology should be adopted. The subject head stated that "The method is not the subject" and suggested that to attempt to teach inquiry methodology as well as a course on Australian geography in a single semester is too much. Ideally, an understanding of inquiry should "evolve" through the teaching of a number of courses. He suggested that a general introduction to all senior syllabuses should explain the process of inquiry teaching. Both teachers agreed that, in retrospect, they felt that it would have been preferable to have introduced the inquiry approach into the other senior units.

Regarding the theoretical readings which had been supplied, both teachers agreed that such large documents were intimidating, and felt that new teachers would be better helped through seminars and workshops.

In developing the work programme, the syllabus document was used as a guide, but the Subject Head commented that topics were chosen not only in the light of the Core and Content Matrix (page 10), but also bearing in mind what had been taught in previous units. He had considered AGI in the context of a two year course, and suggested that since physical geography, for example, had been taught in an Australian context, this earlier work would not need to be repeated.

In meeting the syllabus document requirement that all processes and skills of inquiry are developed, the Subject Head suggested that in early units in the course, this was done by closely structured inquiries, but that the amount of direction was reduced as the course continued. In relating content to processes and skills, the students had been told their assigned topics well in advance, although they may not have been taught the appropriate skills and processes until further into the course.

The teacher agreed that most of the resources for the course had been provided for the students, either using the resources which had been collected for "Man and Environment" or from the teacher's own provision of worksheets or photocopies. The students had not had to look further, other than for their own independent research assignment.

Both the teacher and the Subject Head suggested that AGI appealed to more able students. They felt that the less able students missed the security of direct teaching. The teacher of this class admitted to finding difficulty in achieving a balance between directing the students' work closely, while still remaining apart to allow them to complete inquiries on their own. The teacher considered that it would have been easier to have integrated inquiry approaches into more conventional teaching, and both teacher and Subject Head stated that this plan would be progressively effected in all units in the future.

Assessment of AGI

AGI was assessed through a series of data response activities, a field work report, the independent research assignment and two examinations. The examinations accounted for 60% of the total assessment. Initially, it had been the teacher's intention to limit the amount of content knowledge which was to be tested, but later the decision was made that content should be examined. This decision that the type of examination for AGI should not be markedly different from any others was made because, firstly, the teacher wanted to reassure less able students and secondly, because AGI was regarded as primarily a course in Australian geography. Both teachers emphasised that they believed that all geography assessment should include a range of instruments, from those designed to test recall to data response and practical activities.

The teachers stated that many weaker students had left the senior geography course by the end of Grade 11. Of those who remained to follow AGI in Grade 12, many of the weaker students had performed better in AGI than in some other units. The teachers' perception was that AGI compresses the range of scores especially at the top end of the performance range.

The teachers' advice to those wishing to adopt the AGI unit.

These teachers considered that topics should be based on the resources available in the school. Care should be taken to ensure that there is no duplication of topics with other units. Students should be encouraged to select their topics for independent study from the very local area to ensure the use of primary data sources and field techniques.

In assessing AGI, the teachers were happy with their examination strategy and advocated it for others to emulate, but suggested that students should be encouraged to plan their independent study in great depth and to specific criteria.

Both teachers were opposed to the idea of selecting specific students for an AGI course, and emphasized that many less able students reponded very positively to the responsibility and freedom of the AGI course. A further advantage of AGI suggested by these teachers is that it encourages a valuable type of in-service teacher education as teachers strive to meet the challenge of innovative teaching strategies.

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SCHOOL NINE

SCHOOL NINE

The teacher and the class following AGI

The semester under examination was the first in which students at this state high school had followed AGI and the first in which the teacher had taught the course. The teacher was in her seventh year of teaching and holds first degrees in geography/history and education studies.

AGI was taught to a class of 16 students in semester 4, following units in Man and Environment, Living Environments and Settlement studies. The teacher did not know how many students had not followed the full 8 - 10 geography course and considered it irrelevant to make allowance for any who may not have done so. She explained that while geography in Grades 8 - 10 was focused primarily on content knowledge, skills and processes of geographical study were given greater emphasis in Grades 11 and 12. Thus a student in the senior course who had not followed the junior course was not especially disadvantaged. Of greater importance in formulating a senior geography course in the opinion of this teacher was the school option policy at senior level, whereby the combination of subject 'lines', which included geography, was seen as working against the interests of both the students and geography as a subject area.

The teacher's view of AGI

For this teacher, AGI is the culmination of the 2 year geography course in which all the ideas which have been taught and explored under teacher guidance in other units are put together by the students. The emphasis of AGI for this teacher is on the inquiry process, and she commented that such processes could have been developed in the context of any part of the world.

The topics chosen and the methods of approach

In line with the view of AGI outlined above, the work programme for AGI was planned to include an introduction to inquiry methods, one unit from each of the areas studied in semesters one to three and an independent research project.

The topics selected, in addition to the introductory unit, were:

1. Who lives in Brisbane?
2. Will wilderness areas survive in the future?
3. Kangaroos: friends or foes?
4. Australia's greatest resource - animal. vegetable, mineral or ...

The introductory unit of two weeks duration was closely structured by the teacher and included a number of practical exercises on thinking skills and two investigations of a general nature entitled "Whodunit?" and "Which ..... do I buy?"

'Who lives in Brisbane' was a guided inquiry closely directed by the teacher, into the ethnic groupings of Brisbane and included a visit to the city to observe the features which had been studied. The inquiry included

use of newspapers and statistical summaries, as well as information from other government departments and community groups.

The study of wilderness was a research assignment in which the students worked substantially alone in the library to produce a written report, while kangaroos were studied in small grops from materials provided by the teacher. This was a diagnostic assignment and students were expectd to select a single aspect of the topic and produce an oral presentation.

The study of "Australia's Greatest Resource" was an individual research assignment and was assessed by oral seminar presentation.

The teacher's perception of the success of the topics

The teacher regarded the final series of seminars on Australian resources as having been most successful. She confessed that the quality of the students' work was much higher than she had expected. Even those students who had taken considerable time to adapt to the AGI course had collected much useful information and presented their material well.

The least successful units were felt to be those on wilderness, due to the students lack of experience at being assessed on oral presentations, and on kangaroos, since at the time of the study many students had been involved in other school activities. Furthermore, since the topic was not being assessed, students may have regarded it as being of less importance.

The students' perceptions of the inquiry units

Figure 9.1 shows topics chosen by students as being of greatest value.

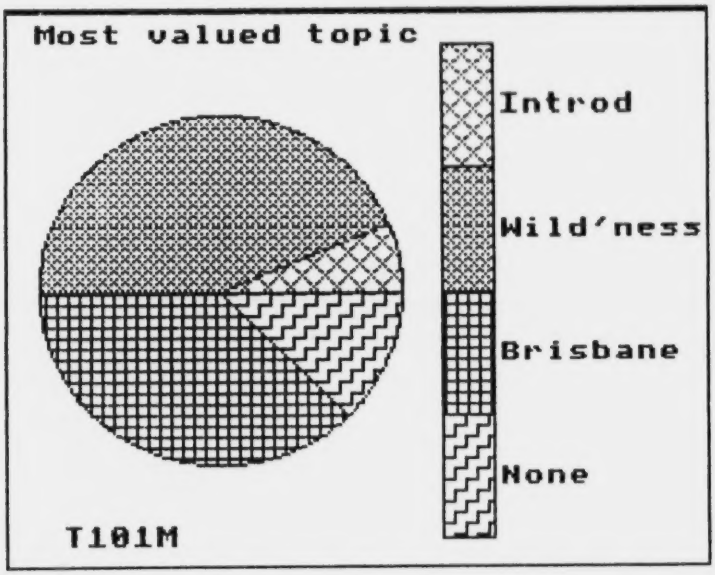

Fig.9.1 Students perceptions of the most valued topics in AGI

Figure 9.1 reveals that the students did not agree with their teacher's view of the most successful topic. Students considered that the topics on wilderness and Brisbane share the 'most valued' category almost equally. Their comments in support of this revealed a concern for both the content knowledge gained and the processes of gaining that knowledge.

* Wilderness - "learning about the Franklin issue and finding that such an untouched area exists in Australia"
* - "It helped you to reason and argue more effectively"
* - "I believe I learnt much more by doing it alone"
* - "Knowledge of what a wilderness is and where found"
* Brisbane - "I was ignorant of the extent of others in our community"
* - "I did not realize that Brisbane had so many different cultures"
* - "interesting to find out who actually does live in our city"
* - "compared with the others it held some semblance of necessity"

Figure 9.2 shows the students' perceptions of the least valued topic.

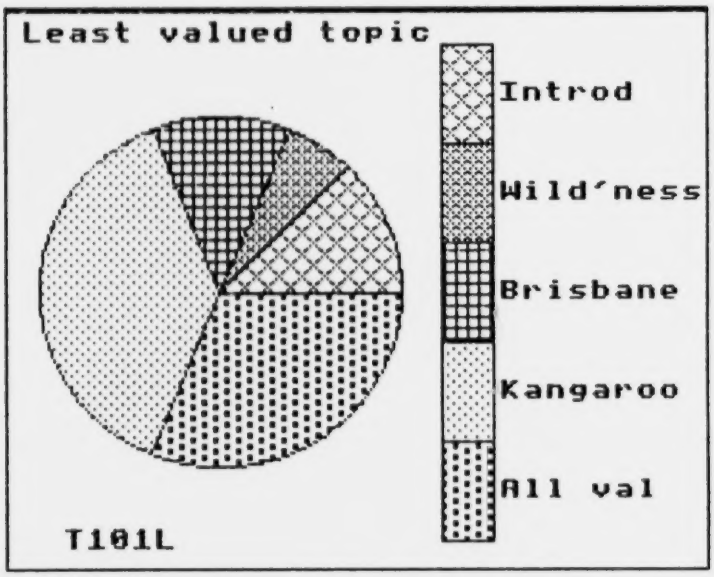

Fig.9.2 Students' perceptions of the least valued topics in AGI

The unit on kangaroos appears to have been least successful for these students. However, it is significant that for about a third of the students, none of the units merited mention as least valuable.

The comments offered by the students referred to the problems of reaching a conclusion on what appears to be to many a trivial issue.

* Kangaroos - "hard to find one side of the fence of this issue"
* - "dragged out - not interesting"
* - "wasn't for any assessment, hardly any work to do"
* - "utterly boring and irrelevant"

* - "of no interest, very boring"
* - "difficult to draw a conclusion"
* Wilderness - "boring, tedious, meaningless - I lacked direction. So much pressure to do well I couldn't relate to the topic"
* Brisbane - "self evident°"
- "lists of statistics which mean little to students"
* Introduction - "uninteresting and difficult to concentrate"
* - "no significance to the subject"

Student perceptions of the use and value of various types of inquiry

Figure 9.3 shows that these students thought that they had spent much time in clarifying their personal perceptions about various environments as well as seeking solutions to problems. The students considered that the problems being investigated had been introduced jointly by themselves and their teacher, and that both teacher- and student-provided resources had been used. They perceived that they had been required to work more alone than in groups.

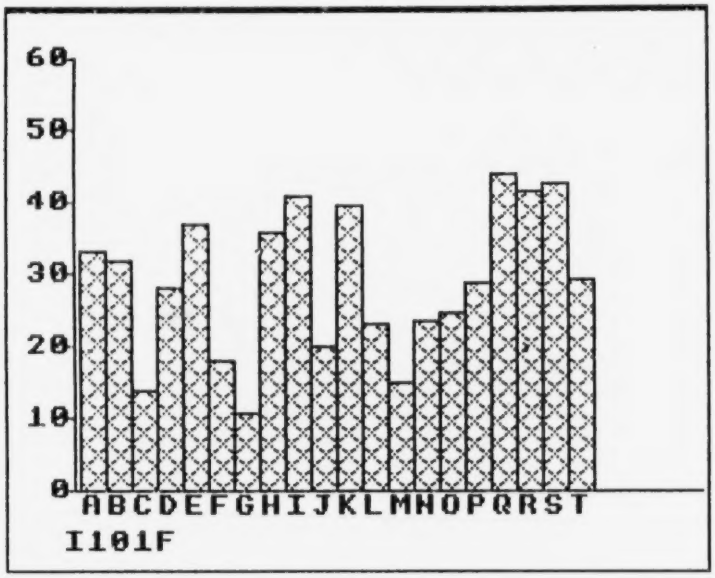

Fig.9.3 Student perception of their experiences of various inquiry types

Figure 9.4 shows the students' valuations of these inquiry types. They expressed particularly high valuations for the investigation of topics which they had selected themselves, and which allowed them to clarify their personal perceptions, preferably through field work. However, of those inquiry types which the student body as a whole agreed as having been experienced, all were accorded significantly positive valuations.

The accounts of the approaches used in the various topics, as described to the evaluator, did not appear to afford the students much

opportunity to create their own questions, but the teacher explained that, with the exceptions of the units on kangaroos and Brisbane, the students could select those aspects of each topic into which they particularly wished to inquire. The teacher did not recognize any topic in which students had been required to create a new or imaginative approach to a problem, as suggested by their responses to inquiry type C.

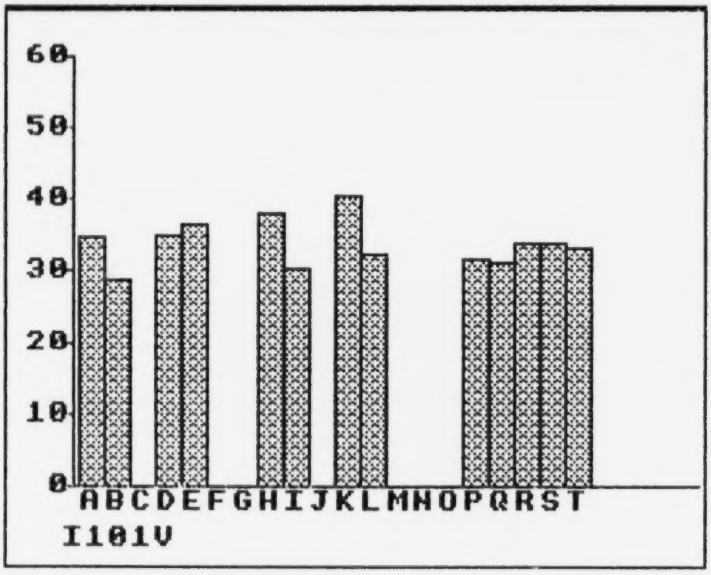

Fig.9.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

Figure 9.5 shows the students perceptions of the extent to which various resources were used during their AGI course. It reveals that information from government agencies, industry and community groups was used extensively, while field work was also seen as a major source of data. These resources were backed up by encyclopaedia and photocopied information. The low emphasis placed on the use of topographical maps should be noted here.

Figure 9.6 shows that the students had strong feelings about the relative value of the various resources they used. Of greatest value to the students were photocopied information provided by the teacher, government information sheets and visits out of school. Encyclopaedias, field work and laboratory-type activities were also considered valuable, although the latter was not experienced during the AGI course.

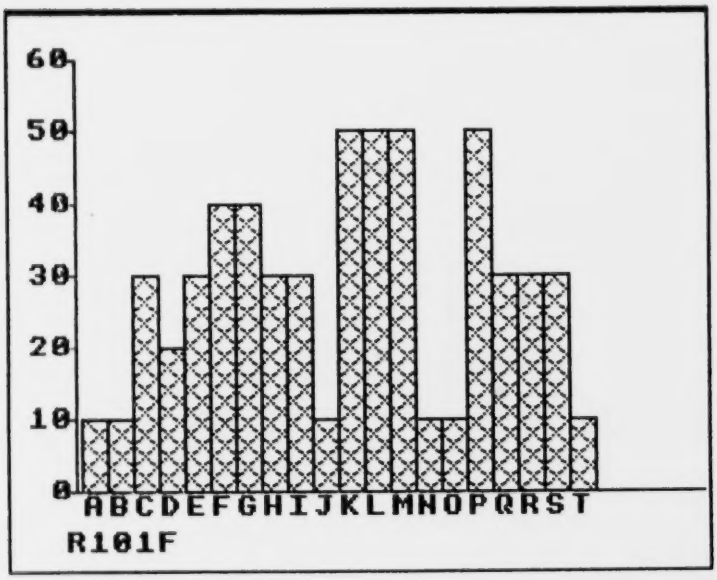

Fig.9.5 Student perception of their use of various resource materials

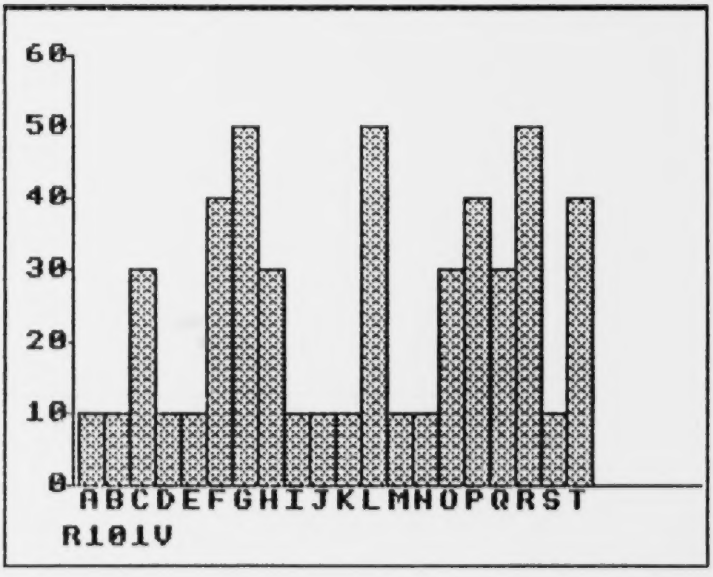

Fig.9.6 Student perception of the value of various resource materials

Figures 9.7 and 9.8 show the students' perceptions of the use and value of the basic modes of data presentation.

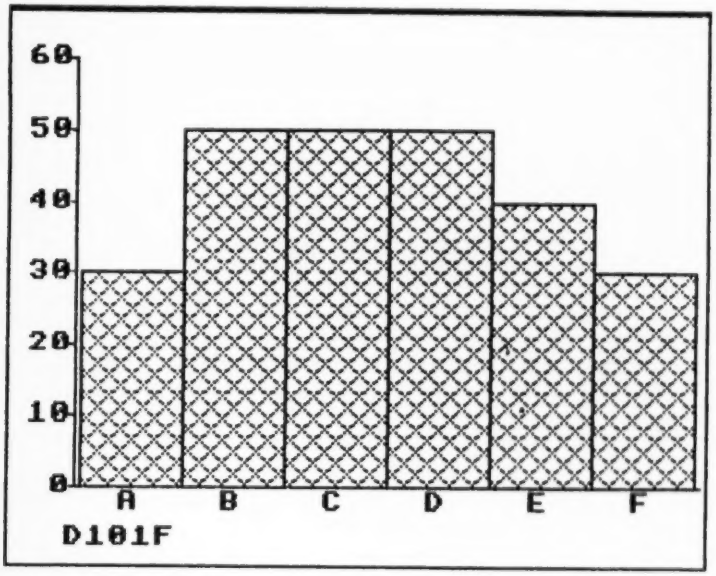

Fig.9.7 Student perception of the use of basic data presentation modes

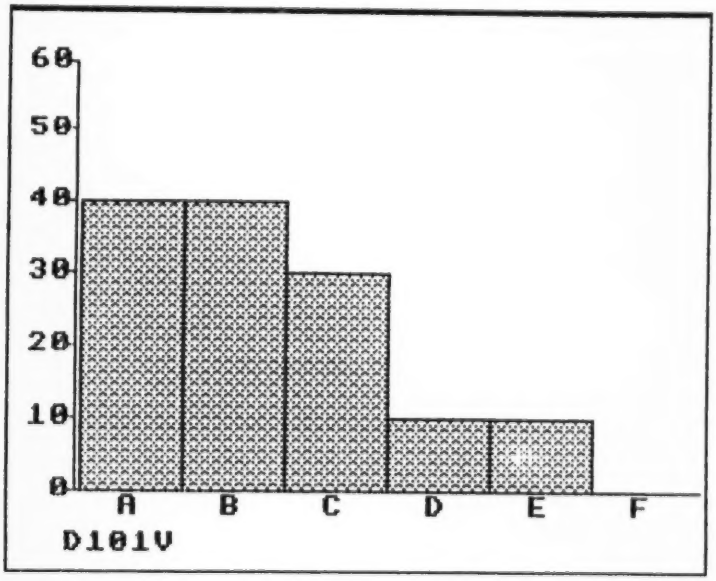

Fig.9.8 Student perception of the value of the data presentation modes

These responses suggest that while all the modes were utilized to a significant extent, photographs and graphs were used less that tables of figures, written descriptions and diagrams. In view of the teacher's statement that she used statistics more for students to interpret than for them to manipulate, the evaluator noted with interest that statistical information appears not to have been often presented in graphic form.

The students expressed their highest valuations for photographs tables of figures, with a slightly lower valuation of written description and little regard for diagrams, maps or graphs.

The students' evaluation of the AGI course compared to their experiences of geography in Grades 8 - 10

Figure 9.9 shows that a majority of students regarded AGI as of greater value to them than their junior courses, while a significant proportion were either neutral or preferred not to respond.

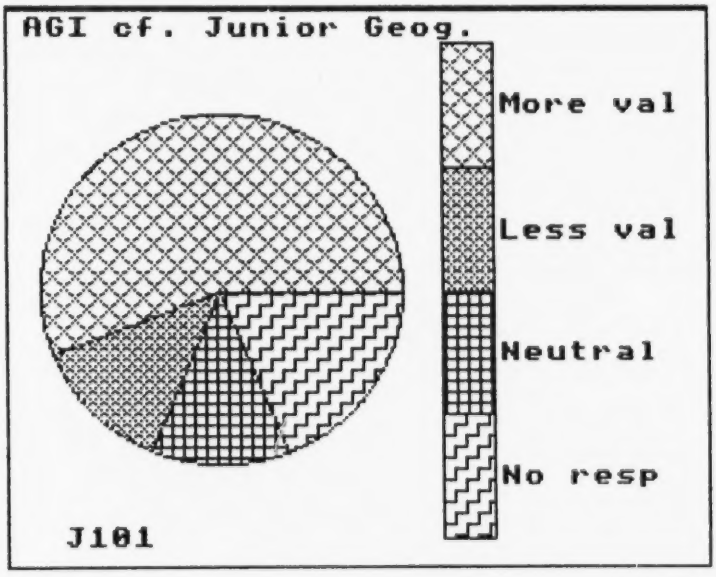

Fig.9.9 Student perceptions of AGI compared with Geography 8 - 10

The student comments on AGI in this context emphasised the interest of the topics and the work styles involved. The comments included:

* "It teaches geography skills and processes better. We are actually aware of the skills we are supposed to be developing"
* "Greater concentration on one area than previously. More time to understand and more relevant to Brisbane"
* "More interesting and valuable - more choice and some topics directly affected us"
* "Less assessment, more interesting, more up to us to get things done"

* "Gave students a good introduction to tertiary teaching principles - benefited those who wanted to work hard, although I disagree with the assessment"
* "More interesting and more individual work. To a certain extent this is good"
* "Harder and often lacking in interesting material"
* "More difficult due to independent research also less writing activities"

Students' comparisons of AGI with other senior geography units

Figure 9.10 shows that while only about half the students consider AGI to be of greater value than other units, the majority of the remainder remain neutral on the subject or made no response. The students' comments, even from those who were neutral in terms of the question of comparison, generally praised the AGI course, although areas of concern included the assessment and the type and amount of teacher involvement. Comments included:

* "Our awarenes of skills is greater. I wish this course had been in Semester 1"
* "More time to work at our own pace"
* "Good but no real indication of how you were progressing. No assessment. Took a while to get used to working without teacher direct help"
* "Enjoyed it more. I relate to it as it is about this country"
* "Freedom to chose vs. teacher direction. In the AGI unit there was little teacher assistance"
* "I didn't mind AGI. I thought the structure of the lessons could be more informative"
* "Much harder and mostly boring although a necessary evil connected with our education"
* "Equally good but more practical"

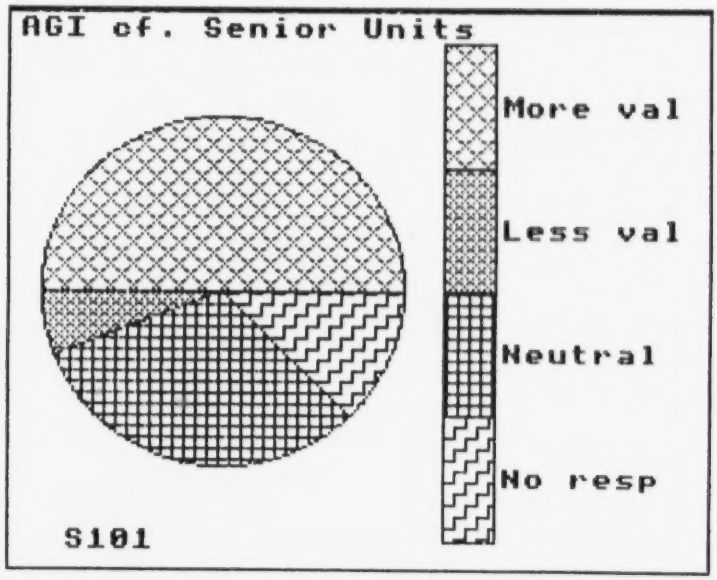

Fig.9.10 student perception of AGI cf. other senior geography units

The teacher's summary comments on AGI

This teacher had constructed the AGI work programme in consultation with the school Subject Head. She had found that the syllabus document with its discussion on the nature of inquiry had assisted with structuring the initial lessons of the course. Both teacher and Subject Head had found difficulty in interpreting the intentions of the syllabus regarding the emphasis to be placed on inquiry methodology and the geography of Australia. They both felt that the existence of a unit on Australia in the senior course is of great importance.

In considering the syllabus document, the teachers had chosen to adopt the broader statements on pages 13/14 rather than the more specific Core and Content Matrix on page 10, to take allowance of the areas of inquiry already introduced in other senior units. The approach to each topic had been made in the light of the requirement that 'the full range of inquiry processes and skills should be developed' and students had been constantly reminded to consider the type of inquiry on which they were engaged in these terms. Thus Brisbane was investigated as part of a closed inquiry while kangaroos were studied as an open inquiry.

The teacher had not found the selection and supply of resources to be a problem. Students had been introduced to the need for a variety of resources early in the senior course, and the use of magazine articles and skills of writing to various organizations to request information had been developed as part of the Man and Environment unit.

The teacher considered that some students performed at a significantly higher level in this unit than in the other senior units. However, she was uncertain whether this should be attributed to the AGI course or to the 'latest and fullest' aspect of the ROSBA assessment methods. Interim awards had been made on the basis of work in Semester 3, but although the total numbers of students allocated to the various levels of achievement had not changed as a result of the AGI course, the order of merit of students in the group was different by the end of the course.

The teacher was most enthusiastic about the benefits of the AGI course. She had found the opportunity to talk individually to students to be a great advantage, and had enjoyed the more personal and group styles of teaching made possible by the course. However, she considered that she may not have found AGI to be as big a change in teaching style as some colleagues in other schools since she had previously used inquiry teaching both with junior classes and in other senior units. She admitted, however, that these earlier inquiries had been on a smaller scale and had involved higher levels of teacher direction.

In conclusion, the teacher described AGI as "a great subject which ties everything together for ROSBA". She recommended AGI for general implementation.

Assessment of AGI

AGI was assessed with three instruments. The seminar was allocated 30%, the individual research assignment was allocated 30% and a final

examination was allocated 40% of the total marks. Content was not assessed and emphasis was placed on the practical skills of geography and the processes to be adopted in investigating a specific question.

The teacher admitted that some members of the class were unhappy about the assessment. They were concerned with the high weighting of the course on their exit statement under the 'fullest and latest' criterion, especially since they were not used to having a high proportion of their marks devoted to an oral presentation.

The teacher's advice to those wishing to adopt AGI

This teacher emphasised the advantages of having an integrating option within the senior geography course. She considered that the selection of units should depend on the placing of AGI within the senior course, and the topics to be included in other units. Senior geography should be planned as an integrated two year course.

In selecting resources, the teacher librarian should be acquainted with proposals well in advance and subscriptions taken out for a number of magazines concerned with the Australian environment. Students should be prepared for their search for information early in the senior course and should be used to the techniques of writing for information before the course begins. In this school, one student undertook to write for materials for which there was a fee and was re-imbursed by the library. The materials were then presented to the library at the end of course.

The teacher considered that the amount of assessment should be limited and suggested a maximum of three instruments. Content should play a small part in the assessment of AGI.

AGI was described as a course in which student participation is essential, regardless of ability. The teacher thought that students should be warned in advance that their success would depend on their willingness to participate fully. In schools where there is a high dropout rate from Grade 11, AGI should perhaps be kept until the final year.

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SCHOOL TEN

SCHOOL TEN

The teachers and the classes following AGI

In this rural state high school, AGI was taught to two classes. The first was a Grade 11 class of 5 students taught AGI in semester 1 by the subject head. This teacher held a first degree and Diploma in Teaching and had four years of classroom experience. AGI preceded courses in Development, Geomorphology and Settlement. At the end of this semester, the subject head left the school and was not replaced until the end of the following semester.

The second was a Grade 12 class of 9 students taught AGI in semester 1 by a second year teacher who also held a first degree and Diploma in Teaching. For this class, AGI followed Geomorphology, Development and Settlement. The result of this arrangement was that this teacher taught AGI without the benefit of the advice of a subject head, and faced with a work programme which she had not personally constructed.

In each class about half the students had not completed Grades 8 - 10 geography. A further constraint on the teaching of geography was the option system of the school whereby students had to select between geography, chemistry and physics in one line and geography and physical education on another. The result was that the smaller class included only girls, while the larger class included only two boys.

The teachers' views of AGI

Both these teachers regarded the main emphasis in AGI to rest in the inquiry area with the actual content as being of secondary importance. The emphasis on inquiry was seen as important as a preparation for tertiary education as well as for the business world.

The subject head had chosen to teach AGI at the start of the senior course in order to prepare the students for inquiry approaches in the other units. He considered that this decision had been of doubtful value, since there was then no logical summary unit and AGI was seen by the students as a change in approach to the subject for which they were not prepared. This teacher considered that inquiry should ideally be introduced in Grade 9.

The other teacher had been instructed to teach AGI as the final unit by her principal but was not pleased with this decision. She felt that the course should have been taught in Grade 11 so that the skills learned could have been used in other senior units. She also felt that the last semester of the senior course was too short to enable full value to be gained from AGI.

The topics chosen and the methods of approach

The AGI course consisted of a series of inquiries which although originally conceived as being discrete, became integrated into an overall inquiry into aspects of the local area. The topics had been selected on the basis of student opinion the year before. The subject head

had felt that the isolated location of the school, 2 hours from each of the two nearest towns and 4.5 hours from the nearest city, was highly significant in choosing appropriate topics.

The topics selected for study were:

1. Introductory unit
2. What is the Australian outback?
3. Why is S.W. Queensland the most sparsely populated area of Queensland?
4. Do the people who live in outback Australia really lack the social and cultural facilities available to the city dwellers?
5. Should there be restrictions placed on the number of kangaroos that can be legally killed in Australia?

The introductory unit of a single week's lessons included a description of the various types of inquiry, together with discussion of an article written by Dr. Bernie Cox on the nature of inquiry and a video of an episode of a 'Quincy' programme.

The inquiry into the outback was also allocated a single week and was resourced with statistical, map and audio-visual data. This inquiry led on to an investigation into why S.W. Queensland is so sparsely populated, and hence to a comparison between the home town of the students and the city of Toowoomba. This comparison was based on a field study visit to Toowoomba during which observations and questionnaire evidence was collected.

The final topic was on kangaroos and was again based on questionnaires, visiting speakers and field observations.

The subject head had progressively withdrawn teacher direction throughout the semester, while the other teacher had found a higher level of direction necessary throughout the semester and had omitted the inquiry into S.W. Queensland due to lack of time.

The teachers' perceptions of the success of the topics

The subject head was convinced that the study of kangaroos had been most successful since students had applied a wide range of learning processes, including video taping field evidence and had produced good quality written assignments. On the other hand, he regarded the study of the outback to have been least successful as both he and the students had been new to the course and the resources available had not been very stimulating.

The other teacher considered that the comparison with Toowoomba had been most successful since the students had chosen the main areas to be investigated and had enjoyed working with 'real' resources. For this teacher, kangaroos were not an interestig topic, and many students approached it with pre-conceived ideas. This teacher taught the topic with a greater emphasis on secondary data than field work.

The students' perceptions of the inquiry units

The students' responses to questions about the topics showed that many did not differentiate between the unit on the outback and the study of Toowoomba, while some regarded the study of the outback and that of population sparcity in S.W. Queensland to have been indistinguishable. Interpreted in this light, Figure 10.1 shows that the students regarded the study of the outback to have been most successful. Within the two classes, a majority of both preferred the outback, while support for kangaroos was found only in the class taught by the subject head.

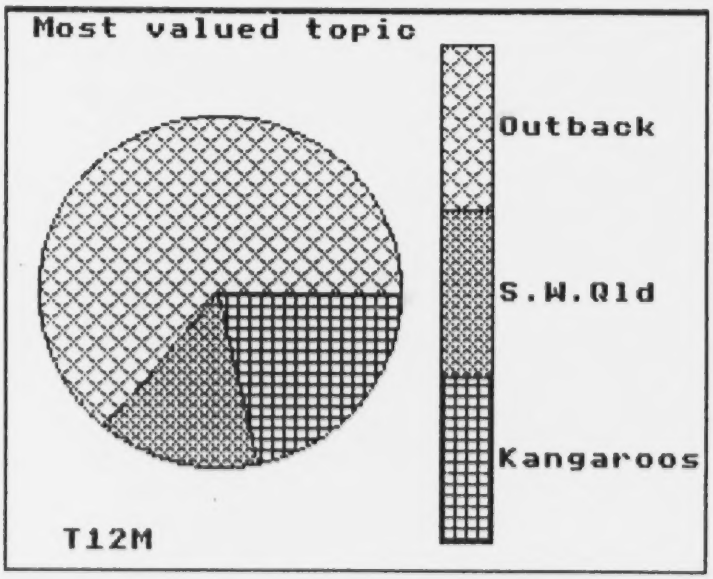

Fig.10.1 Students perceptions of the most valued topics in AGI

Students' comments on their most valued topic suggest that they appreciated the opportunity to travel outside their own community:

* "We were able to actually go out in the field of study and compare it with our own town's social and cultural facilities"
* "We actually went out on a field study land soon found out what we were lacking"
* "We could do practical research and so information was readily available It gave us the chance to do surveys and have people contact"
* "I thought I knew what was in the city and how widely it would be used, but it was enlightening. We included an informative questionnaire"

Comments on kangaroos included references to the pleasures of trips out of school and confirmation that the animals really are a pest:

* "Most valuable because I consider that culling kangaroos is a hobby "
* "It was fun because we went on an excursion to actually see what we were inquiring about"
* "It was interesting and I learnt more about why they kill the kangaroos and how much damage they actually do"

The least valued topic was about kangaroos. In the larger class every student except one selected this topic, while the smaller class were split between the outback and the population of S.W. Queensland. The comments on the kangaroos emphasised the preconceived idea on the topic rather than on the teaching methods employed:

* "Who really cares? We find out about it in the papers anyway. Irrelevant and uninteresting if you are in contact with them often"
* "No relevance to life after we finish school, i.e. no-one is going to become an enquirer into the number of roos killed. Also boring."
* "I don't want to know anything about kangaroos. I see enough of them out here so it doesn't interest me. It is stupid. It didn't fill up the space in my brain. I am none the wiser"

Comments on the outback included:

* "Rather boring and I didn't learn much from it. It didn't seem to make much sense"
* "I didn't feel it was necessary or interesting"

S.W. Queensland elicited only:

* "Not valuable because I already knew why S.W. Queensland is the most sparsely populated area of Queensland."

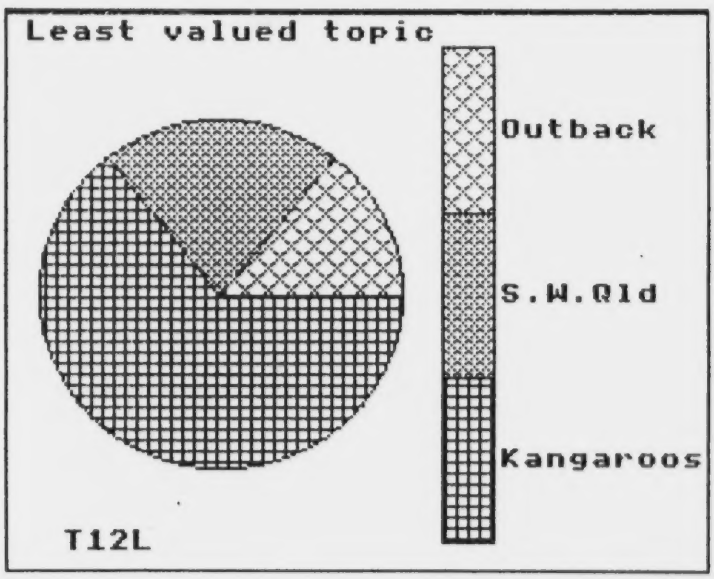

Fig.10.2 Students' perceptions of the least valued topics in AGI

Student perception of the use and value of various types of inquiry

Figures 10.3 and 10.4 show the students' perceptions of the extent to which they experienced the various inquiry types and their valuations of these inquiry types.

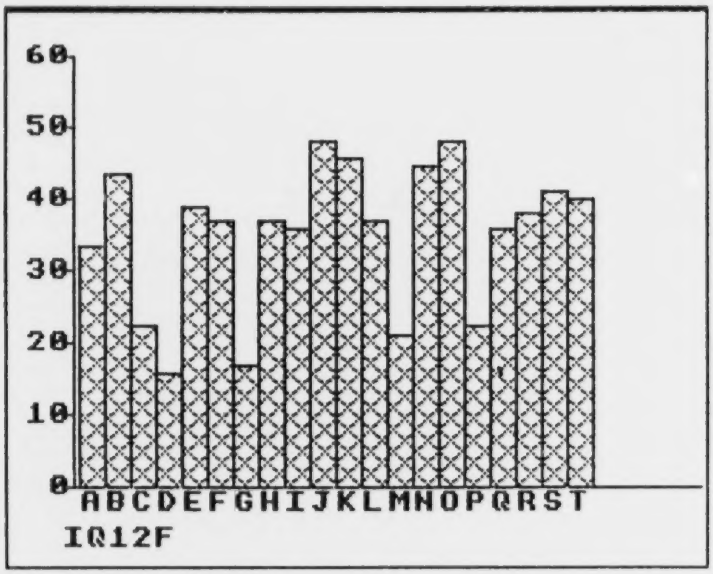

Fig.10.3 Student perception of their experience of various inquiry types

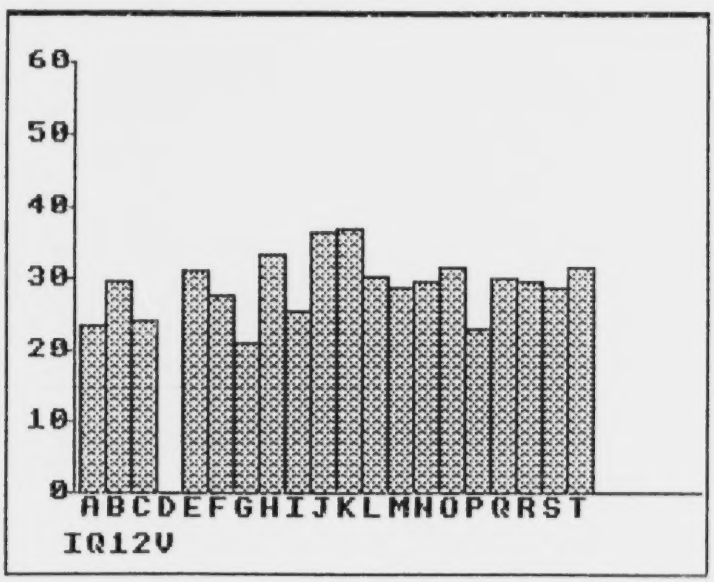

Fig.10.4 Student perception of the value of various inquiry types

Figure 10.3 suggests that these students experienced a wide range of inquiry types with varying degrees of teacher direction. The only types of inquiry which appear to have received little attention involved concepts of beauty and physical experimentation.

Figure 10.4, however, shows that these students were reserved in their valuations of all the inquiry types, with slightly greater enthusiasm expressed for field work and seeking solutions to problems. Examining goodness and beauty was not considered to be a valuable inquiry.

The resources used in the course of the semester

Figure 10.5 shows the students' perceptions of the extent to which they used various sources of information.

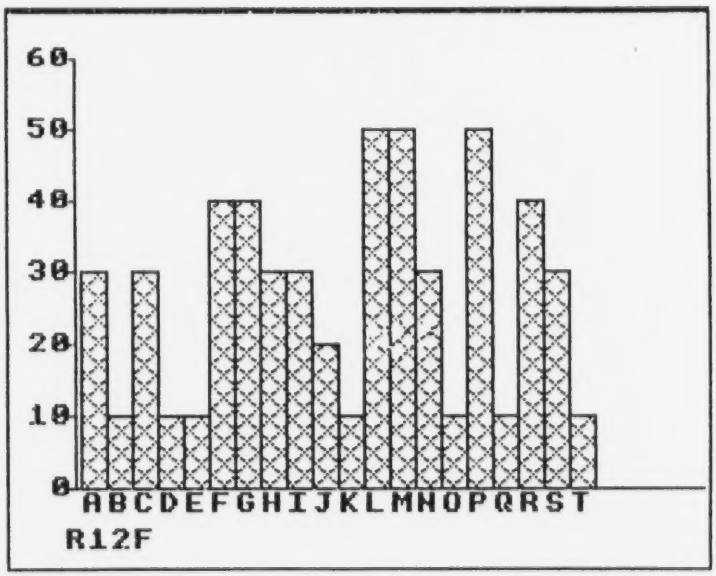

Fig.10.5 Student perception of their use of various resource materials

These students appear to have been exposed to a variety of public domain documents with primary information being provided by field work and visits. Encyclopaedias and teacher-provided photocopies were the main source of secondary materials.

Figure 10.6 shows the students' valuations of the various resources. Encyclopaedias, photocopies and public domain information were particularly valued, as were audio-visual materials, visiting speakers and visits out of school. The 'visits' aspect appears to be valued more highly than the 'field work' aspect of the various excursions made.

The teachers commented that while many resources were provided for the students in the early parts of the semesters, as the course progressed, students made greater use of the library. The library of the school was

described by the subject head as surprisingly good for a small school, and a wide variety of resources was discovered which had not been used in traditional teaching. Students were also provided with addresses of organizations associated with the various areas of study and encouraged to write for extra information. The less experienced teacher, however, admitted to having found the search for resources more difficult initially, although she had found the situation had improved as she became more involved in the course.

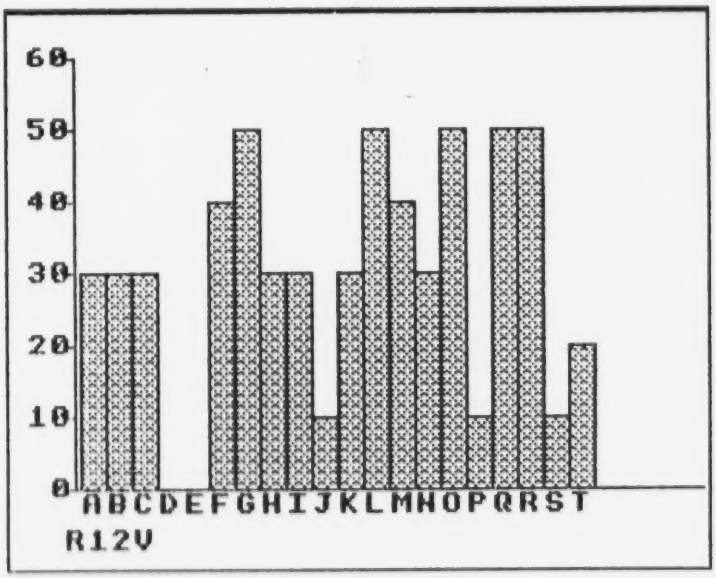

Fig.10.6 Student perception of the value of resource materials

Figures 10.7 and 10.8 show the students' perceptions of the use and value of the basic modes of data presentation. It reveals that while photographs were used very little, other modes received moderately high usage. However, students' valuations of these were high for all except graphs which received no response from over half those in the classes.

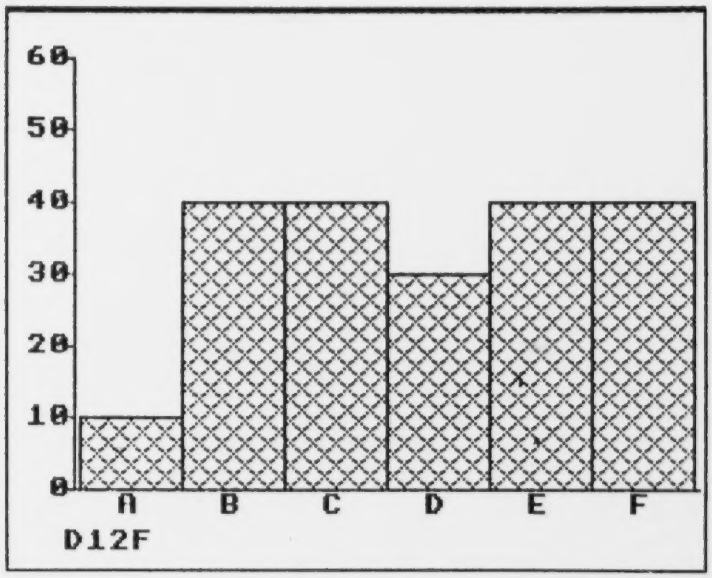

Fig.10.7 Student perception of the use of basic data presentation modes

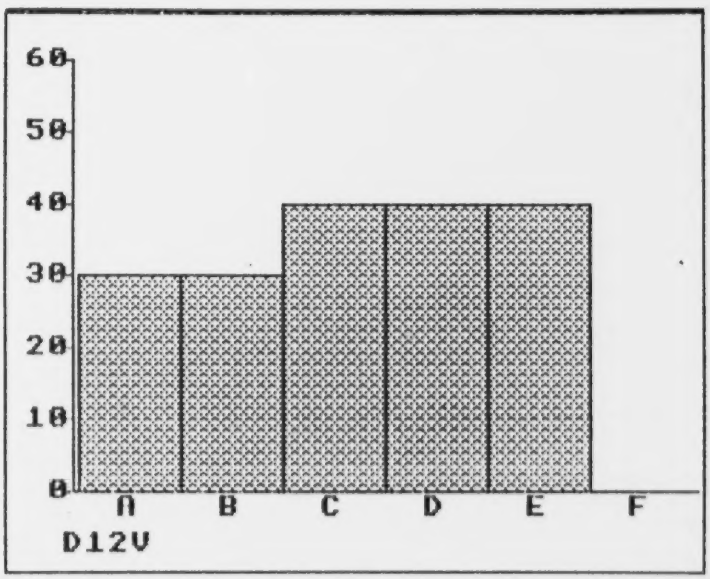

Fig.10.8 Student perception of the value of data presentation modes

The students' evaluations of AGI compared with their experiences of Geography in Grades 8 - 10

Fgure 10.9 shows that a majority of students considered that the AGI course compared badly with their experiences of geography in Grades 8 - 10.

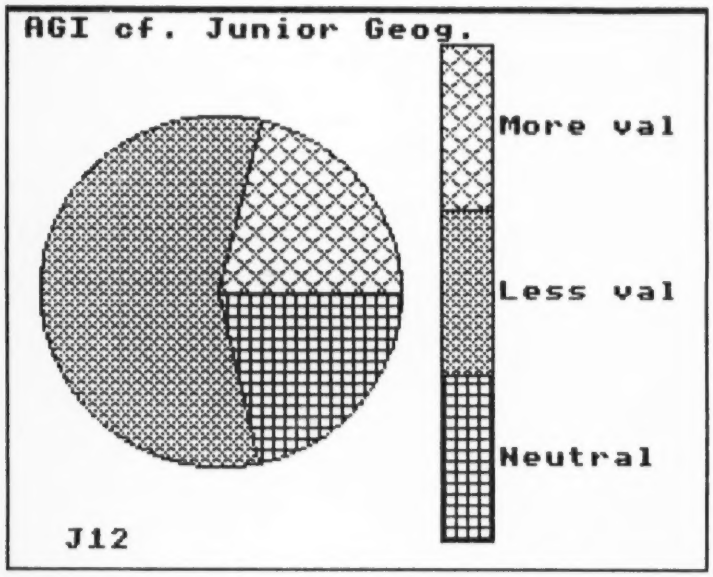

Fig.10.9 Student perceptions of AGI compared with Geography 8 - 10

For many of the students, the AGI course appears to have been too difficult, while a number of the students expressed surprisingly negative feelings towards their home area. Whether such expressions reflected their true feelings, or whether they are a relection of the attitudes of their teachers, is impossible to discern from the data available. A selection of the students' comments is presented here.

* "It took nearly the whole semester to grasp the concept. Too advanced. practical work in country areas is difficult - too isolated. Frustrating and boring."
* "Field work is good but isolation restricts increased knowledge. Frustrating in that the concept took a while to grasp. Lack of resources, so how can we fulfil the inquiry"
* "I found that the AGI unit, although the concept interested me, was very difficult to research. It also required advanced skills which I personally hadn't developed before"
* "AGI course was more practical. I was interested because I am a person of the outback and S.W.Queensland"
* "On the whole very interesting, especially if you can understand the subject"
* "This unit is very difficult from the type of geography lessons I have had. It is difficult to understand, tho' it was interesting - I don't really want to do it again"
* "Good because it involved class discussions and group research. It does get a little difficult when attempting to synthesise, analyse etc."

* "I do not like this AGI unit compared with 8 - 10 as it involves class discussions and doing your own work. I find this difficult"

Students' comparisons of AGI with other senior geography units

Figure 10.10 shows that students' enthusiasm for AGI was even less when compared with the other senior units than when compared with junior geography.

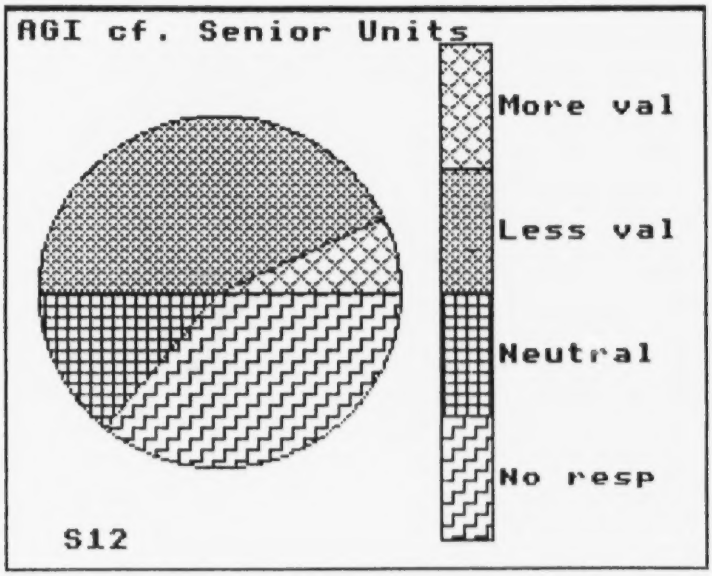

Fig.10.10 Student perceptions of AGI compared with other senior geography units

Student comments reflected a concern about the teaching/ learning style adopted, the resources available and the value of the topics investigated. It is significant that when students were asked to nominate the units which they regarded as most and least valuable, some enthusiasm was expressed. However, in reflecting on the whole course, great reservations were expressed. Comments focussed on the relevance of the topics and learning/understanding problems. Those students who expressed positive feelings towards the inquiries all, at some point in their responses, stated with pride their close association with outback Australia. Comments included:

* "It was a completely different unit of work from the others: too drastic a change. I didn't like it at all. Wasted a semester on inquiries that wern't able to be researched - lack of resources and field work extremely limited."
* "The course involved a lot of field work which we could not do"
* "Interesting but concepts took a lot longer to grasp. Some topics were a little irrelevant"
* "It was too drastic a step to take from the other units studied"

* "Topics in field work were interesting. The inquiries were worthwhile because in outback Australia we do lack cultural and social facilities"
* "Topics in other units were more interesting as they were about things we could relate to"
* "Other units more interesting and you could obtain more information than in AGI"
* "Practical and interesting, unlike the other units"
* "Interesting because we are learning that there are other people who do live in the outback who know that kangaroos should be culled legally"

The teachers' summary comments on AGI

The school work programme had been constructed by the Subject Head who admitted to having been rather confused by the syllabus document. He regarded the document as being very repetitive, while also failing to clarify whether the examples given were truly examples or represented a compulsory structure. Such matters had eventually been clarified at meetings. The theoretical readings had been found to be of considerable help. However, the attempts to marry the subject head's views on the importance of emphasising local matters when teaching in isolated locations with the syllabus document's apparent requirement that inquiries should be undertaken at local, state and national scales, appears to have led to increased confusion on the part of both teachers and students.

After teaching the course, both teachers stated that inquiry skills should have been introduced much earlier in the school and that AGI could then have taken its rightful place as a semester of inquiry into specific areas of Australian geography. Despite this, they still regarded the development of inquiry skills as being the prime purpose of the course.

Both teachers noted that those students with inquiring minds were much happier with AGI than those who preferred a reception -style of learning. However, the extra work involved with AGI in terms of finding resources, reduced its popularity with all students. The teacher of the larger class had found that many students liked the idea of developing their inquiry skills, and regarded this as important, but had disliked the topics chosen. Both teachers had appreciated the closer contact they had enjoyed with their students while working on AGI.

Assessment of AGI

Assessment of the smaller class in Grade 11 had been achieved through four instruments: Firstly, a written field work report; secondly, a multiple choice and data response examination; thirdly, an independent research assignment; and fourthly a final open book examination which included essays, data response and multiple choice questions. The subject head admitted to finding both the setting and marking of the examinations problematic, although consultation with other teachers had helped him to rationalize the situation. The other teacher was unhappy with examinations as valid assessment instruments for this course, but had felt constrained to apply a single examination.

The teachers' advice to those wishing to adopt AGI

Both teachers considered that AGI should be offered for general implementation, and both independently offered very similar advice.

They suggested that topics should be chosen to comply with students' needs and interests, based on local resources wherever possible. They also felt that the teacher's interests should be taken into account. The amount of freedom given to students in selecting topics should depend on their previous experience of both geography and inquiry.

Both teachers emphasised the need for a variety of assessment instruments, although limited in number. However, while the Subject Head considered that examinations should be used in order that those students who shine under examination conditions are disadvantaged no more and no less than those whose strength lies in oral or written reports. The other teacher felt that examinations of any sort were inappropriate to the course.

Neither teacher considered that students should be specially selected for AGI, but the subject head suggested that where a choice was to be offered, less able students should be encouraged to take the option and could then be given help with particular aspects of geography skills and processes which they may lack.

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SCHOOL ELEVEN

SCHOOL ELEVEN

The teacher and the class following AGI

At this state high school, the AGI course was being taught for the first time for both the school and the subject head. The Subject Head holds a first degree majoring in economics and a second first degree in education studies, in which he specialized in the teaching of geography. This teacher had had ten years of classroom experience.

AGI was being taught in the final semester of the senior course and followed Physical geography, Settlement and Development. About half the class of nine students had not completed the junior geography course and students' selecting their senior subjects had to choose between geography, art and chemistry. These two factors had resulted in senior geography classes in which the command of basic skills was poor. However, the teacher regarded this as part of his working context over which he had no control and planned accordingly. Thus, they were not regarded as 'a problem'.

The teacher's view of AGI

This teacher regarded AGI as a course in Australian geography to be taught through inquiry. However, he felt that due to the novelty of the inquiry approach, it was very easy for the teaching of inquiry methodology to take precedence over the substance of the course. AGI had been introduced into Semester 4 as an alternative to the Man and Environment course and in order to take advantage of the skills and knowledge that students had acquired during the rest of their senior course.

The topics chosen and the methods of approach

The starting point for this teacher in constructing his work programme was the topics which had been taught in the Man and Environment course. Topics on sand dunes, vegetation and Stradbroke Island were linked together to provide an integrated study. In the light of the requirements of the syllabus document, especially as expressed in the Core and Content Matrix on page 10, two further topics, on the distribution of the Australian population and the destinations and distribution of migrants to Australia, were also integrated. The intention of this pattern of topics was to meet spatial requirements of the syllabus.

The topics selected for study were:

1. Introduction to inquiry
2. Sand dunes and vegetation in S.E. Queensland
3. Management of North Stradbroke Island
4. How has the settlement of the Samford District been affected by developments in transport?
5. Where do Australians live?
6. How well do migrant groups integrate into 'mainstream Australian society'?

The introductory unit presented students with the question 'What is an inquiry process?' and proceeded to investigate closed and open ended inquiries. The unit included a video of a detective story, a number of short data-response inquiry exercises, a study by the students of a number of academic articles, and reference to 'The Desperate Student's Guide to passing I.R.P.'

In the following topic, the main question was expressed as 'Physical Australia' and this was then sub-divided into sub questions at the regional and local levels. Thus, the regional inquiry was "What natural vegetation types were found in S.E. Queensland prior to white settlement?" and "In what ways has man altered this vegetation?", while the local level the questions included "What is the relationship between sand dunes and the surrounding vegetation in coastal areas near Brisbane?" This led on to an inquiry into "How should the Stradbroke Islands be managed?" The inquiries into this topic at the local level were conducted through library study, map study, meetings with representatives of the Beach Conservation Authority, and field excursions to the Stradbroke Islands and the Southport Spit.

In investigating the Samford valley, students were instructed to design an approach to the question and to prepare a data collection field study to area.

In investigating population, students were encouraged to devise their own questions and inquiry approaches, with the help of regular 'conferences' with the teacher. Much of this work was based on library research and was reported both in writing and by illustrated oral presentation.

The teacher's perception of the success of the topics

The teacher regarded the studies of Stradbroke and Samford as having been most successful. The students had visited both sites in Grade 11 and the teacher claimed that 'familiarity breeds confidence'. This teacher placed great emphasis on the importance of field work and had made considerable efforts to ensure that his students had been been trained in field techniques through the seven field excursions undertaken during the senior course. With such a background, the students had been able to formulate their own questions for investigation and had gained maximum benefit from the time at their disposal.

The least successful topic was considered to be the introductory unit on inquiry process. The teacher had interpreted the syllabus document statement on page 10: "The inquiry process is a core inquiry" as demanding such a unit, although he himself was not convinced of the value of such an approach. A further problem which had diminished the effectiveness of the unit was the inspections of the teacher by the school principal, deputy principal, subject master and Department inspector during this period.

The students' perceptions of the inquiry units

Figure 11.1 shows the students' perceptions of which units were most valuable. It shows that students agree with the teacher that the visit to Stradbroke were most valuable, although significantly, the Samford study received no mention by students in this context. The twin units on Australian population and migrants received support from about a quarter of the group, while one student declined to nominate a 'most valued' topic since 'all were equally valuable'.

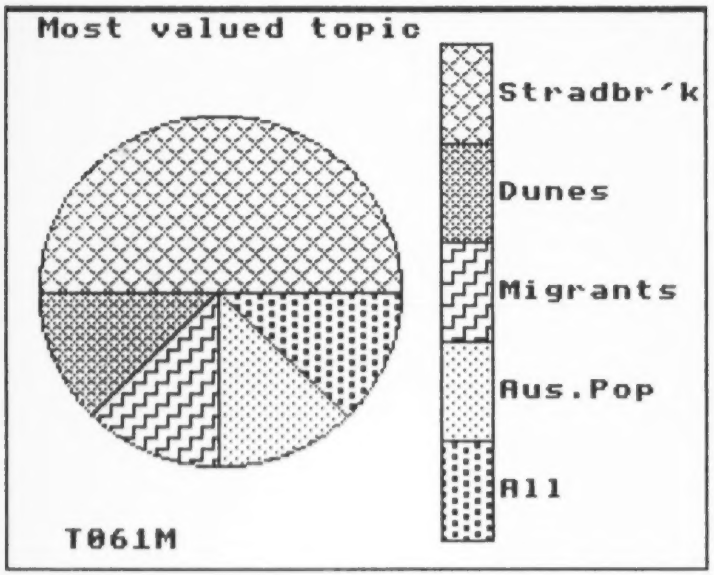


Fig.11.1 Students perceptions of the most valued topics in AGI

Student comments particularly revealed the benefits of field camps:

* "The assignment plus a field trip were good additions and enabled us to gain first hand information on a topical issue. All aspects of the island were taken into consideration and in effect our opinions were made to seem important"
* "This was enjoyable because of the field excursion to North Stradbroke. I learnt more with on hand (sic) information than trying to teach us in class. Could feel what we were talking about"
* "I was able to get out into the field and be able to see first hand how unspoilt parts of the island are, and how sand mining has affected it. Otherwide it would have been just another boring classroom lesson, just words. The full impact would not have reached me"

On the other hand:

* "Because I'm a migrant and it was interesting to see what races and what resources are available for them and how they have their own community"

Figure 11.2 shows which topics were regarded as being least valuable. The study of sand dunes was named by the largest number of students, while Migrants and the Samford study also received mention. A number of students did not wish to nominate a 'least valued topic'.

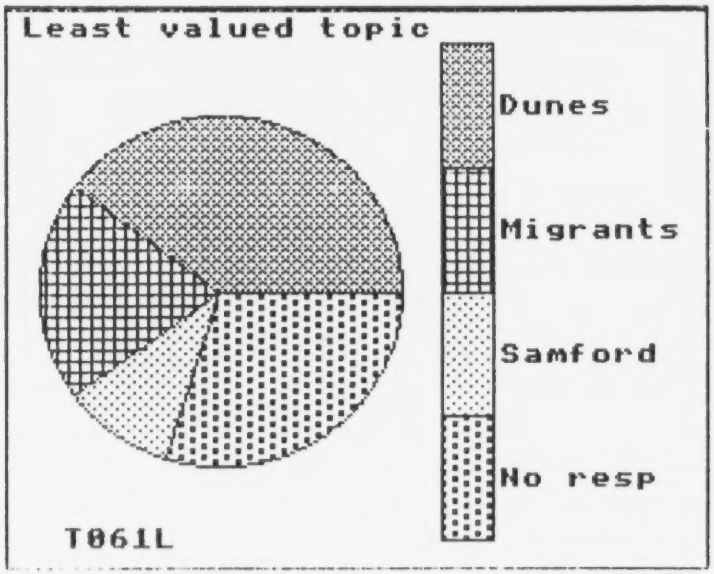


Fig.11.2 Students' perceptions of the least valued topics in AGI

In this context, the perceived value of the topics formed the basis of most of the comments.

* Physical Australia - "Because sand dunes didn't have any relevance to me, I really could of done without that information".
* - "Not interested in this. I don't care if there are sand dunes or not or what type of vegetation there is".
* - "I don't want to know about the composition of sand dunes in S.E.Queensland or about how to identify certain tree types".
* Samford - "The development of Samford is interesting but the transport area in Samford has not really changed over the last few years and has no real appeal for my interest".
* Dunes - "It was less valuable only to the extent that there was too many statistics and biological names of plants, trees, etc., which I did not understand and was unable to recognize.

Student perceptions of the use and value of various types of inquiry

Figure 11.3 shows the students reactions to the various inquiry types. In terms of frequency, these students regarded their AGI course to involve much field work and considerable library research. The items to which they gave greatest attention all involve styles of working and resource acquisition rather than styles of inquiry.

Figure 11.4 shows that almost all the inquiry types appear to be rated as valuable, with field work and student selected problems being

highly valued, as were inquiries in which the teacher supplied all of the resources. The relative flatness of the graph suggests a high level of student satisfaction. For these students, experimental work was barely recognized, although their teacher had ensured that weather and other instruments had been used in the field. It seems likely that these students regarded such activities as part of field investigations and that this question referred to work carried out under laboratory conditions.

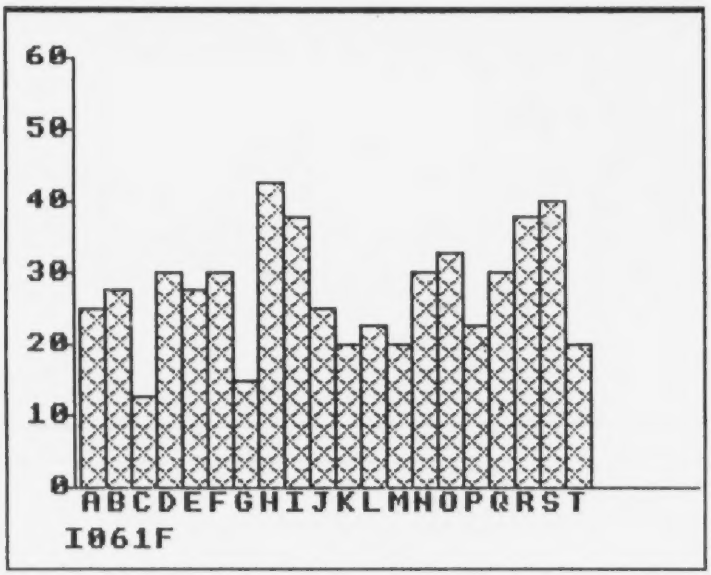


Fig.11.3 Student perception of their experiences of the inquiry types

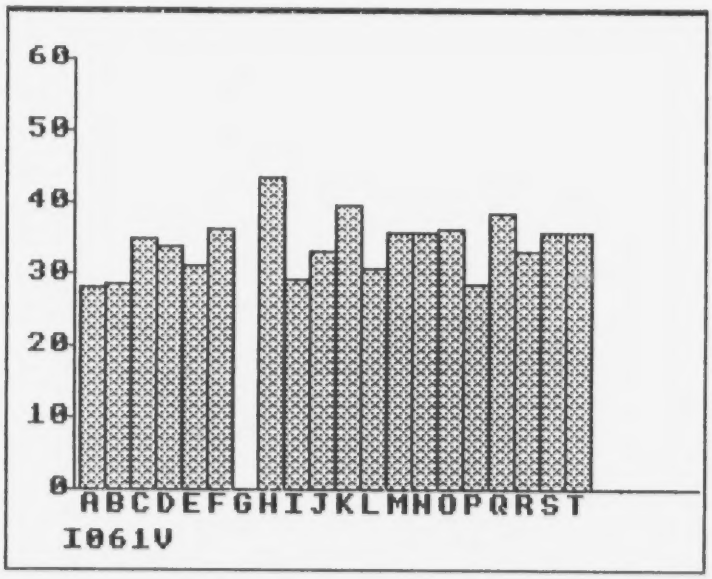


Fig.11.4 Student perception of the value of various inquiry types

The resources used in the course of the semester

Figure 11.5 shows that the main resources used by these students are photocopied materials and teacher-produced worksheets together with field work. Of considerable importance were public domain materials from government and other groups, topographic maps and visits out of school, while audio-visual materials and encyclopaedias made significant contributions.

Figure 11.6 suggests that these students regarded text books, photocopies, audio-visual materials public domain materials, visits out of school and visiting speakers as being of greatest value. On the other hand, the field investigations and teacher-prepared worksheets which loomed large in the students' perceptions of resource-use frequency were not regarded as of great value.

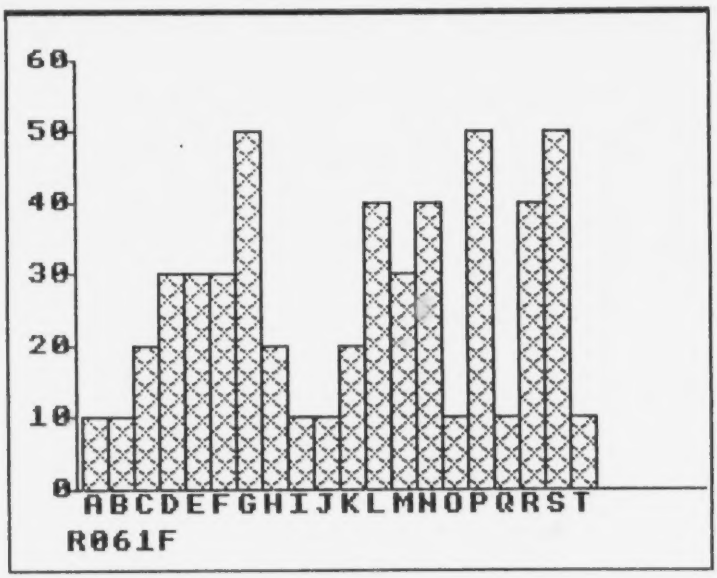


Fig.11.5 Student perception of their use of various resource materials

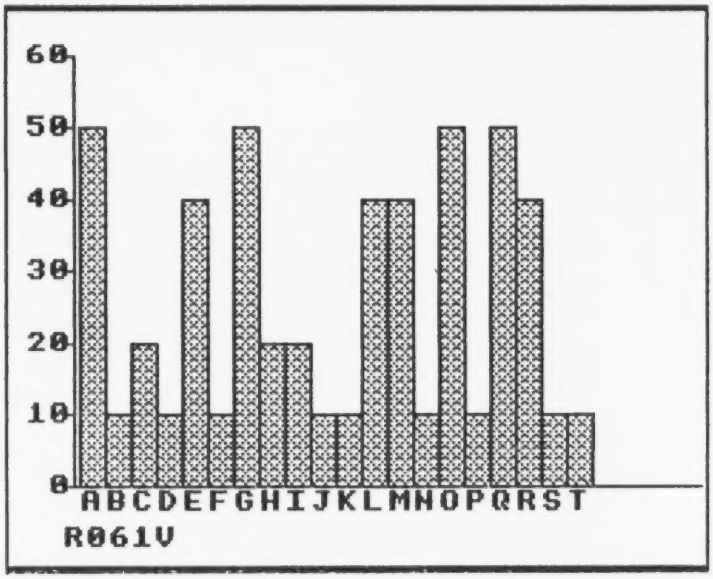


Fig.11.6 Student perception of the value of various resource materials

Figures 11.7 and 11.8 show the students' perceptions of the use and value of the basic modes of data presentation in their AGI course. The students apparently made little use of photographs, and relatively great use of maps. In expressing their evaluations of these modes, written descriptions and diagrams received high scores, while graphs were not seen to merit attention at all by over half the students.

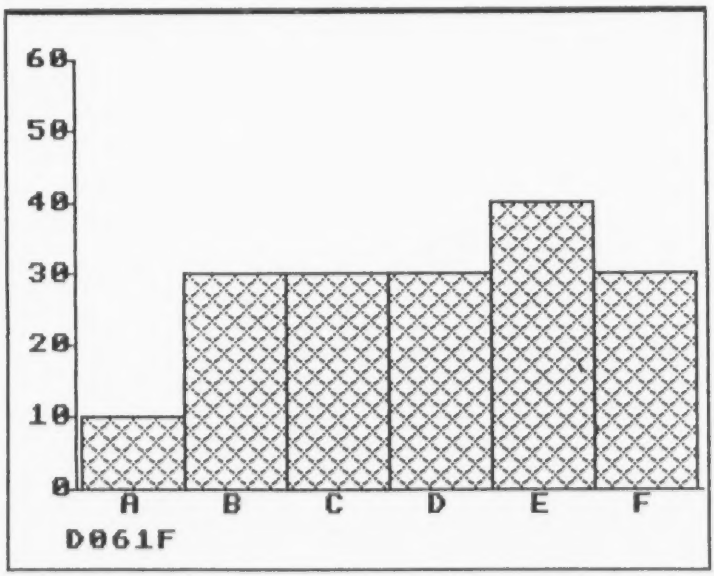


Fig.11.7 Student perception of the use of basic data presentation modes

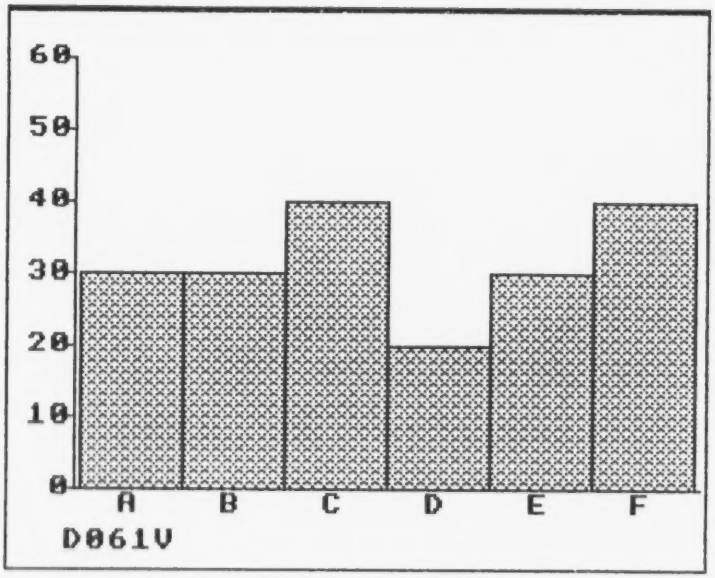


Fig.11.8 Student perception of the value of the data presentation modes

The teacher commented that the majority of resources were teacher provided, although the students had been sent to State Library to read the McNamara Report on Stradbroke Island. He also pointed out that the full Sunmap ortho-photo maps of Stradbroke, the Gold Coast and Brisbane CBD were available to students, although they may have regarded these as maps rather than photographs.

The students' evaluation of AGI compared with their experiences of Geography in Grades 8 - 10

Figure 11.9 shows how the students regard the AGI course when compared with geography courses in Grades 8 - 10. It shows that only a quarter of the class regarded AGI as more valuable, while a further quarter were either neutral or offered no response. The students' comments focussed on the content differences as well as on the teaching/learning styles adopted.

* "I only did grade 8 geography and it was really different from grade 12 geography because in grade 8 we looked at more different things we looked at things like wind speeds, landforms & maps & in grade 12 we looked at things like people & landforms"
* "In Grades 8 - 10 I found that we relied heavily on the teacher and text books for information which is boring. However, this unit was too sudden a change as we were not used to relying on our own initiative"
* "It is more important and variable than the stuff we did in the Grades 8 - 10"
* "Grade 8 - 10 was easier and we were allowed to come to our own conclusions. In this unit the conclusions are more important than the content which usually the most interesting"

* "Only did it in Gr.11 & 12 therefore I'm not interested in it. I did it 'cause nothing else there. To me it is uninteresting"
* "The geography was more interesting in Yr 8 - 10 than 11 - 12"
* "I liked grades 8 - 10 better because we got to do more practical work such as the affects of weather and weather patterns"

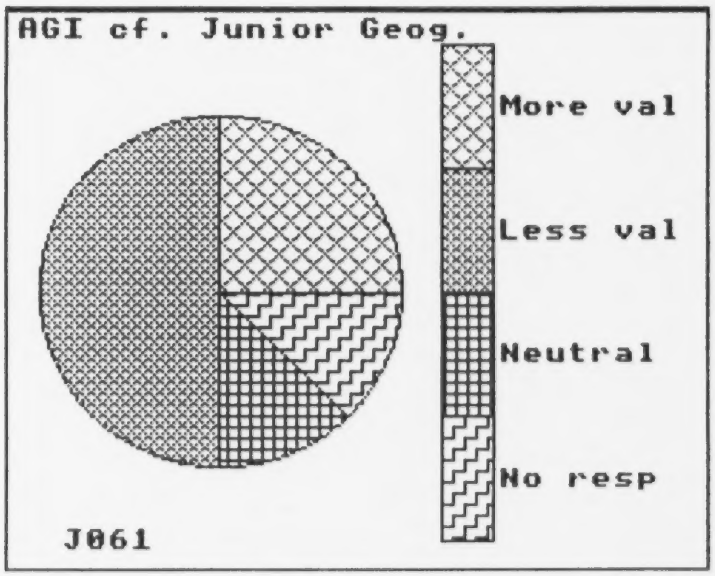


Fig.11.9 Student perceptions of AGI compared with Geography 8 - 10

Students' comparisons of AGI with other senior geography units

Figure 11.10 shows that AGI is regarded much more positively than the other senior units with three quarters of the class valuing AGI more highly and half the remainder preferring not to commit themselves.

In commenting on their preferences in senior geography, the students mentioned their perceptions of the relative difficulty of the units, the interest of the topics and the teaching/learning styles adopted:

* "It was less written work to do, but there was more of mental questions and answers, with practical questions. The other courses, mainly in grade 11, was hard, because the insight of 9 - 10, I did not have. Was more interesting in the topic's closer to the end of the course because it was up to own individual work and mental knowledge"
* "I found the course reasonably interesting although it did tend to drag a little bit in places but it didn't really spoil my enjoyment of the course"
* "The AGI course is mainly the same as any other course with the difference being you do more interesting work. The excursions made the semester more worthwhile and were the most interesting part of the course"

* "Basicly as in Gr 8 - 10. In Gr 11 we relied on the teacher and spent far too long in the classroom learning the theories of Geography. Geography is an outdoors subject and you don't learn about Geography until you get into the field as we did in this unit. However, students taking this unit need to be eased into gradual self-reliance rather than been thrown straight in. Too much class time is boring and useless."
* "I found the 1st semester of grade 12 boring, because we were going through so many notes, but the 2nd semester I liked it because we have had so many excursions."
* "It was very different for a start and is not as hard as content related units. This unit will probably have more benefit in the long run as our decision making processes are examined."
* "Well, it was boring. Other semesters had a lot of work in it, so this unit was better in that there was less work involved. Other than that, it was very boring."

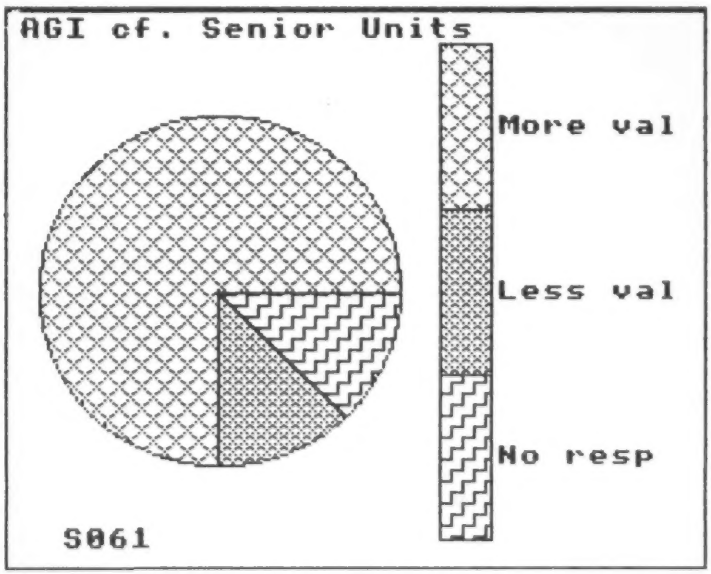


Fig.11.10 Student perceptions of AGI compared with other senior units

The teacher's summary comments on AGI

This teacher had found the lists of inquiry types in the syllabus document useful and had been introduced to the idea of inquiry learning through his studies in history. He had also gained confidence in formulating the work programme from the theoretical readings which had been supplied. However, the teacher commented that the document was confusing in some areas and cited the example of the Core and Content Matrix. He asked, for example, whether a theme studied at both local and national scales should be counted as one unit or as two? The implication of the document for this teacher was that seven units would be needed to fulfill the requirements. In the event, and in consultation with other teaching colleagues, five themes were selected. This teacher was the only person involved in this re-pilot of the course to have specified his programme in terms of the matrix suggested. For this reason, the matrix presented in the school work programme is reproduced below as Figure 11.11.

8. CORE AND CONTENT MATRIX

INQUIRY THEMES	SCALE		
	Local	Regional	National
Human-Environmental Relationships	MANAGEMENT OF NORTH STRADBROKE IS		
Population			WHERE DO AUSTRALIANS LIVE
Physical Australia	SAND DUNES AND VEGETATION NEAR BRISBANE	VEGETATION TYPES IN SE QLD	
Agriculture			
Manufacturing			
Settlement and Transport	INFLUENCE OF TRANSPORT ON THE DEVT. OF SUNGRO		
Social Issues	MIGRANTS IN BRISBANE		MIGRANTS IN AUSTRALIAN SOCIETY

Fig.11.11 Themes presented as part of the Core and Content Matrix from the AGI syllabus document

The teacher felt that AGI appeals to those students who have already achieved self discipline and who enjoy a sense of autonomy. However, for less able students, AGI demands a big adjustment. The teacher had enjoyed the more relaxed teacher-class relationship, made possible by both the small class size and the nature of the AGI course itself, but emphasized that the course required co-operative students to succeed. He also considered that while inquiry styles of learning should be developed progressively throughout successive units, the course worked best when students had a secure background of content knowledge.

Assessment of AGI

The AGI course was assessed by two tests, two field work reports, a research assignment presented in written form and an audio-visual tutorial presentation. This amounted to three hours of examination, about 2,500 words of writing and a 15 minute presentation.

The teacher stated that the examinations were all data response and did not test content knowledge, and he admitted that he had found these examinations harder to set than any others.

He had found that students results in AGI did not always correlate closely with those in other senior units, but he estimated that more students improved their levels of achievement through AGI than performed less well.

The teacher's advice to those wishing to adopt the AGI unit

The teacher hoped that the syllabus document could be clarified to remove doubt about the number of units which should be included. Topics should then be chosen to complement those studied in other units and for which resources are available. He expressd a preference for practical everyday examples of inquiry, although it proved difficult to discern precisely what would fall into this category.

It was considered that so long as a core of topics and resources could be constructed for the first year of the course in a particular school, they could be expanded as inspirtion and resources became available in subsequent years.

Data response questions were considered to be of great importance for examinations, and this teacher recommended that publically funded feasibility be sought out to provide the data for such questions. The consultative documents for the Nerang Rivermouth project had provided such materials for the first AGI examination in this school.

This teacher was opposed to any form of selection of students especially for AGI rather than for other senior geography units. He felt that while those students who did not work would fail the course, those who were prepared to make an effort would achieve higher levels of attainment. This teacher had no doubt that AGI should be made available for general implementation.

-oOo-

SCHOOL TWELVE

SCHOOL TWELVE

The teachers and classes following AGI

At this large private boys' school, AGI was followed by six classes, ranging in size from 12 to 18 students, under the direction of five teachers. The AGI course had been taught in the school for three years, during which time the subject head and two other teachers had been involved. Another teacher was teaching the course for the first time during the semester under study and the fifth had been involved in the first pilot of the course at another school. All the teachers involved in AGI are graduates with post graduate qualifications in education while the subject head holds a masters degree.

AGI was taught in the first semester of Grade 11 and preceded a semester of Physical Geography. During the two semesters of Grade 12, students were required to select two units from Development, Settlement and Economic Geography.

In this school only a very few students do not complete the junior geography course before beginning a senior course in the subject. However, despite the school requirement for every student to follow at least one humanities subject, the ability of students in senior geography classes is influenced by its placement against history, languages and economics. The result was described by one teacher as the 'sixth subject syndrome'.

The teachers' views on AGI

In constructing the school work programme, the subject head had placed his greatest emphasis on the inquiry methodology, and this interpretation was generally accepted by his colleagues, with one exception who felt that the study of Australian geography was at least as important as the methodology adopted. The need to emphasise Australian geography was felt to have become greater over time since inquiry methods were being increasingly adopted lower down the school.

The decision to teach AGI at the beginning of the senior course was felt by all the staff to have been a mistake. AGI had been introduced to replace Man and Environment which had been placed first in the senior course to correct what was perceived as students' inadequate knowledge of the geography of Australia. However, experience suggested that, although AGI helped students to develop independence, their lack of background information inhibited their inquiries. Accordingly, the decision has since been made to move AGI to semester 2, after the students have followed a physical geography course with a strong emphasis on Australian features. The point was also made that, as inquiry methodology is developed lower down the school, AGI need not be taught in Grade 11 and could become a summary course.

The topics chosen and the methods of approach

In constructing the work programme, the subject head asked each member of staff to produce one or more inquiry units on topics of their

choice. This resulted in a number of units, from which individual teachers were required to select. The pattern for the course for all classes thus became:

1. Introductory unit
2. A structured inquiry: either kangaroos or fishing
3. A less structured inquiry: a field study on Stradbroke Island
4. An individual inquiry
5. Two less structured inquiries: selected from -

drought
population
kangaroos
fishing
hydrology
Fassifer valley

The final decision made by teachers during the semester under review resulted in classes investigating units as follows:

CLASS	1	2	3	4	5	6
Introduction	*	*	*	*	*	*
Kangaroos	*	*	*	*		*
Drought	*	*	*	*	*	*
Population		*	*		*	*
Fassifer Valley		*				*
Stradbroke	*	*	*	*	*	*
Fishing	*	*		*	*	
Independent Study	*	*	*	*	*	

The introductory unit included the viewing of an episode from Murder she wrote and students' responses to a number of specific questions about the programme. At the end of the programme and questions, students were invited to summarize the inquiry as a model and then to summarize in point form the process of inquiry as they then understood it. The introduction emphasised the differences between closed and open-ended inquiry and students were required to undertake brief investigations into examples of each type.

Most of the other units listed above were presented to the students in the form of duplicated booklets of expository text, illustrative data, instructions and activities. Although the titles of each of the units were usually stated as single topic words, within each, individual "exercises" were usually in the form of considerable quantities of data to which the students were invited to respond by means of questions: "Is Australia a dry continent?"; "If the icecaps were melted, what would happen to these cities?"; "In what ways, and to what extent, is this trend towards an older population important?" One unit, however, was entitled: "What is happening to the Australian Population?"

The field study on North Stradbroke Island followed the same format as other units with a sixteen page booklet through the students were required to work. Most of the work required of students during this visit was in the form of finding specific answers to specific questions of a factual nature. There were, however, a number of questions of a wider and

more open ended nature. Such questions included "What is the 'image' of Point Lookout?" and "How does it (mining) affect the natural environment?" and "Would you classify Point Lookout a linear type development? If so, what reasons would you suggest for such a development?" The only open question to which the students appear to have been invited to respond was:

> "What impact will the proposed bridge link between Stradbroke and the mainland have on such a place as Amity? What aspects would need careful management? You may like to make brief notes about this while at Amity."

The Independent Research Project was explained to students in considerable depth, with criteria clearly expressed. Students were instructed to identify a problem, design a plan to investigate the problem, gather and process data, reach conclusions and evaluate the study. The final instruction was to write a report in the light of the assessment criteria presented.

The teachers' perception of the success of the topics

When asked to nominate the most successful unit, the teachers nominated those on drought, fishing, hydrology and kangaroos. For most of the teachers, the most successful unit was that which they had prepared. The prime reason for their selections appeared to be the greater confidence felt by most teachers for materials they have prepared themselves, although the extent to which the units were tightly structured and included all relevant resources was also regarded as important.

The least successful units were those in which the close structuring mentioned above was lacking, although all teachers agreed that teacher interest in the topic, the perceived importance of the topic to students, the level of difficulty of activities and the availability of audio-visual resources to 'sweeten the pill' were also important factors. The units on population and fishing were mentioned as lacking in at least some of these aspects.

The students' perceptions of the inquiry units.

Figure 12.1 shows the students' nominations for most successful topic, although it must be emphasized that this figure is constructed from aggregate data and has not been adjusted to take account of the differences in class size nor the number of classes which studied each topic. Nevertheless, it appears that the units on drought and kangaroos were most valued by students, together with their own independent studies. As might be expected from a student group of this size, almost every topic was perceived as being most valuable by someone.

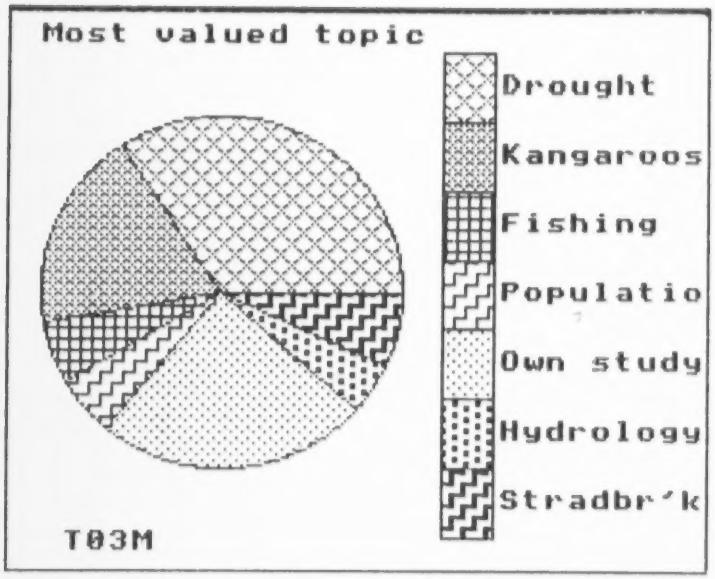


Fig.12.1 Students perceptions of the most valued topics in AGI

The large number of students involved makes it difficult to select representative comments for each topic. This section will, therefore, attempt to select for reproduction representative comments from each class on each of the two topics most frequently mentioned as 'most valued'.

Class 1

* Drought - "We learnt about the difficulties experienced by farmers"
* - "We got a new understanding of the 'concept' of drought"
* - "It was interesting because we could relate to the topic"
* - "It was valuable because of its relevance to Australia"
* Kangaroos - "Information was easily obtainable and it was an interesting topic"
* - "Interesting because it is a 'recent' issue"
* - "interesting, new knowledge, recognition of problems"
* - "I enjoyed the exploration of people's views and bias"

Class 2

* Drought - "about my own country, research is better than texts"
* - "One of Australia's biggest problems"
* - "It showed us how, why and where"
* Hydrology - "Skills and stats and computers"
* - "People need to be more conscious of water"
* - "It supplied us with processes for making decisions"

Class 3

* Drought - "relevant - it opened the eyes of a 'city dweller'"
* - "relevant to Australia and Australians"
* - "made me aware"
* I.R.P. - "own work on area of own interest, find out for ourselves"
* - "field project, relevant and so made me aware"
* - "I studied erosion of an area I knew well, so interested in my own work"
* - "It was my own work and I feel it is important for my future study"

Class 4

* Drought - "This is a natural phenomenon which has indirect and direct effects on Australians"
* - "Interesting, we learnt about the hardships of outback Australia"
* - "relevant - knowledge was gained of our own background"
* - "This is a key problem city dwellers often ignore"
* Kangaroos - "information was given and we could support or not support killing"
* - "we learnt about the damage to Australian landscape and the activities of interested groups"
* - "most valuable, we gained more knowledge about an interesting topic"
* - "This is a controversial, close to the heart topic"

Classs 5

* Drought - "We learnt some new things"
* - "It helped us to understand the problems of the country"
* - "The work was easy"
* - "It affects all people in Australia"
* Fishing - "I liked it because I do it"
* - "Learnt about different types of fish and how to catch them"

Class 6

* I.R.P. - "I enjoyed field work and the collection of data"
* - (on water restrictions in Pine Shire) "I am a resident of the area and I consider this relevant and contemporary"
* - "(on coastal land use) "It showed me how man exploits and destroys his environment"
* - "(on the Boondall site) "currently a very local issue plus individual research"
* Drought - "It is relevant to Australia and affects me personally"
* - "It allowed me a great understanding of a problem which is relevant to me"
* - "It made me aware of an important problem of which I was unaware"

Figure 12.2 shows the students' least valued topics. With the same provisos as in the case of the most valued topics, it appears that fishing was least valued by most students, together with the Population and the Stradbroke studies. Of significance here is that several students regarded their own independent research projects to have been least valuable for them.

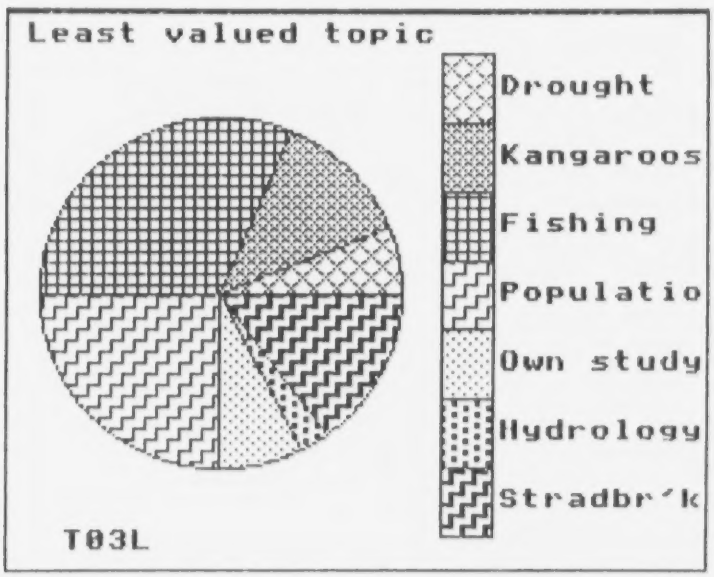


Fig.12.2 Students' perceptions of the least valued topics in AGI

Comments in support of these decisions refer to the perceived importance of the topic, the way in which it was presented both by the unit writer and the teacher. Selected comments are reproduced here on the same basis as in the previous section.

Class 1
* Fishing - "All topics were good, Fishing was the least good"
* - "This was less of an inquiry and more reading work was required"
* - "Not enough time to research properly"
* - "Information hard to understand"
* Stradbroke - "Did not live up to expectations about this topic"
- "Did not enjoy the field trip - an unattractive place"
- "To short, not relevant, boring, didn't go into depth about the coastal problem"

Class 2
* Fishing - "Fun to do but boring to research"
* Stradbroke - "Too structured, issues too old"
* - "Nothing new or important"
* Drought - "Boring, too long, knew it all"
* Population - "Did nothing because it was individual work"

Class 3

* Population - "I feel that I won't be able to use the information in the future. It was a very general outline of all areas of population, which meant that you couldn't make an indepth look into it. It wasn't the most exciting or enjoyable part of the course either."
* - "Because all the information was given which made it too alike to the old book work where you read the information and answer questions that are not designed to make you think and come to your own opinions"
* - "it was boring - most lessons were spent drawing or reading graphs or statistics, not much controversy or inquiry seems to tie in with population. We just worked through a booklet every period, we lacked any class debates or arguments"
* - "Population and drought were purely the completion of handout in class and a test at the end. They didn't seem applicable to me - boring, drudgery and waffol"
* Stradbroke - "Although it was closer to home than others, it really did not effect me at all, and for that reason I feel it was the least valuable"
* - "This section was boring. Actual field studies are not always fruitful and interesting"

Class 4

* Fishing - "least valuable and applicable for me to use in future"
* - "not interesting, nor challenging nor relevant"
* Stradbroke - "Excursion too rushed and disorganized. Uninteresting"

Class 5

* Population - "No direct link to Australia"
* - "Most invaluable to humanity"
* - "boring - just dealing with facts and figures"
* - "does not deal with geography - no real depth"
* Fishing - "does not involve Brisbane"
* - "no interest"

Class 6

* Population - "Far too involved to develop the inquiry skill"
* - "Not a relevant problem to Australia"
- "Too much factual knowledge needed learning"
* Kangaroos - "Totally irrelevant as kangaroos only harm farmers"
* - "Too minor a matter"
* - "Information from this theme was not valuable at all"
* - "Most of the work was given, we didn't have to individually research"

Although the independent study was not mentioned greatly by any individual class, the comments of those few students who did mention it may be of interest:

* Boondall - "Not relevant or an essential part of our studies"
* Roma Street - "It was just another building"
* Olympic Bid - "Although it was very interesting and enjoyable to research, it was such a narrow field that I gained little more knowledge than that of Brisbane's infrastructure and the Olympics in general"
* New Gap shopping village - "I knew it already - I only did it to get marks"
* Freeways - "Too much intangible information to couple together"

Such comments point to the importance of students being guided towards topics which are not only interesting, but perceived as having some importance in terms of their content and for which there is information available both easily and in manageable proportions

Students' perceptions of the use and value of various types of inquiry

Figure 12.3 shows that students considered that they had experienced almost the whole range of inquiry types at some time during their AGI semester. In particular, they considered that field work, and student initiated, inquiries had been experienced more than others, and had been reported in written form by the students working alone, with teachr help when required.

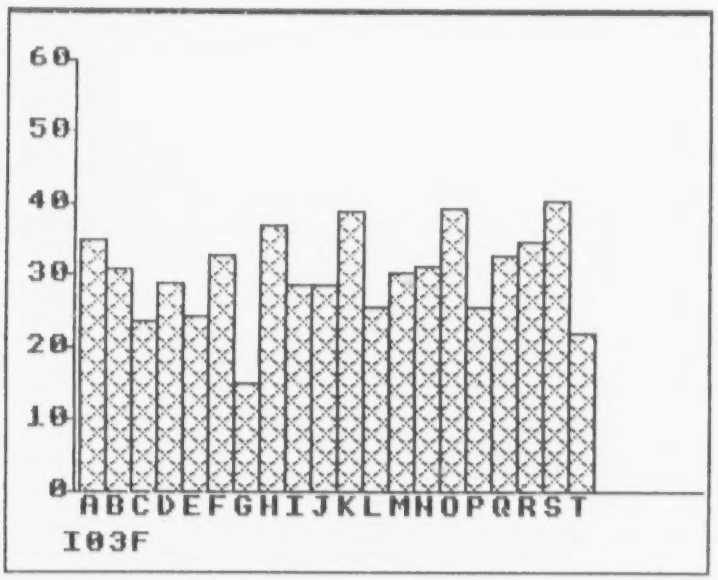


Fig.12.3 Student perception of their experiences of the inquiry types

Figure 12.4 shows the students' evaluations of these inquiry types. The graph profile is fairly flat, suggesting that students have no strong feelings about the various types of inquiry, although the four items which scored most highly for freqency also appear to be the most valued.

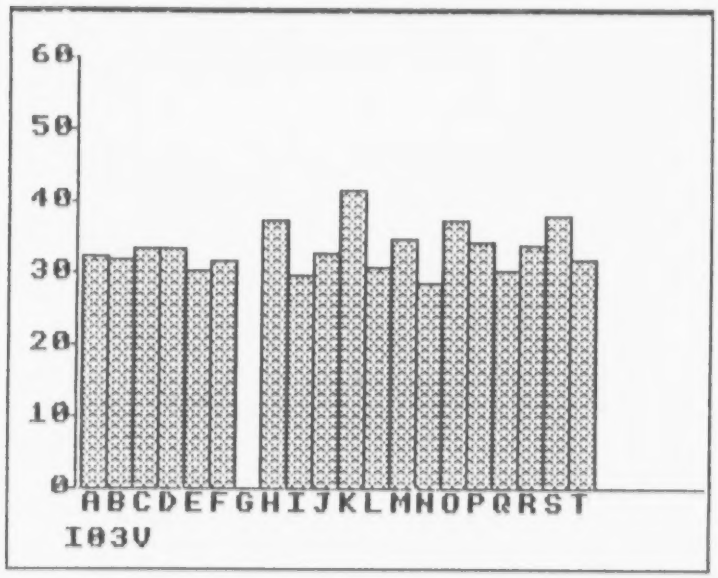


Fig.12.4 Student perception of the value of various inquiry types

The teachers noted the relatively flat profiles of the graphs for their individual classes and agreed that this result was in accord with their intentions. They further noted the students' apparent preference for more highly structured types of inquiry, and suggested that this was to be expected in view of the lower school curriculum with which the students were familiar.

The resources used in the course of the semester

Figures 12.5 and 12.6 show the aggregate student responses to the resources they used during the AGI course. The students recorded that their main resources were in the form of photocopied articles and teacher-produced worksheets, with magazine articles, videos, statistical tables and public domain information from government departments. It is also significant, however, that a considerable number of possible resources do not apear to have been used at all during the semester.

In expressing their valuations of the resources, the photocopies provided and visits out of school were generally seen as being valuable, while the teacher-produced worksheets were effectively dismissed. Audio visual materials of all kinds received approval, as did statistical tables.

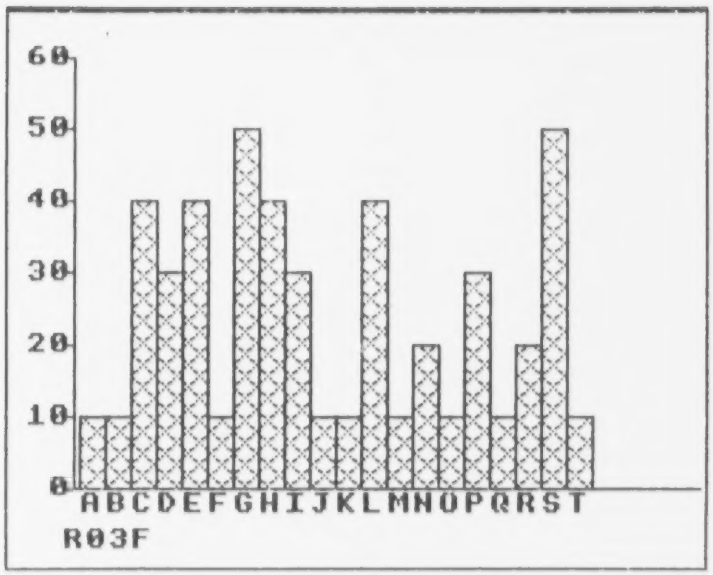


Fig.12.5 Student perception of their use of various resource materials

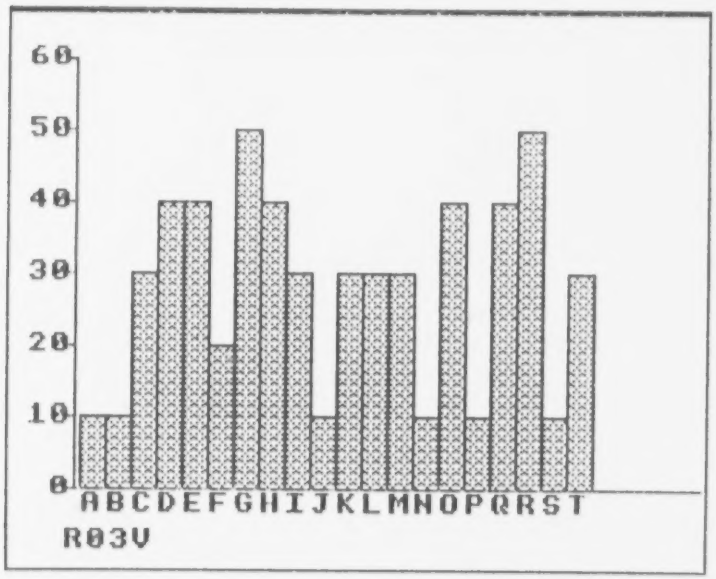


Fig.12.6 Student perception of the value of various resource materials

Figures 12.7 and 12.8 show the students' perceptions of the use and value of the basic modes of data presentation. They suggest that photographs, written descriptions and graphs were used less than other modes. Their evaluations show that, with the exception of graphs, all the modes are seen as of value by the students, with written descriptions and diagrams of greater than average value.

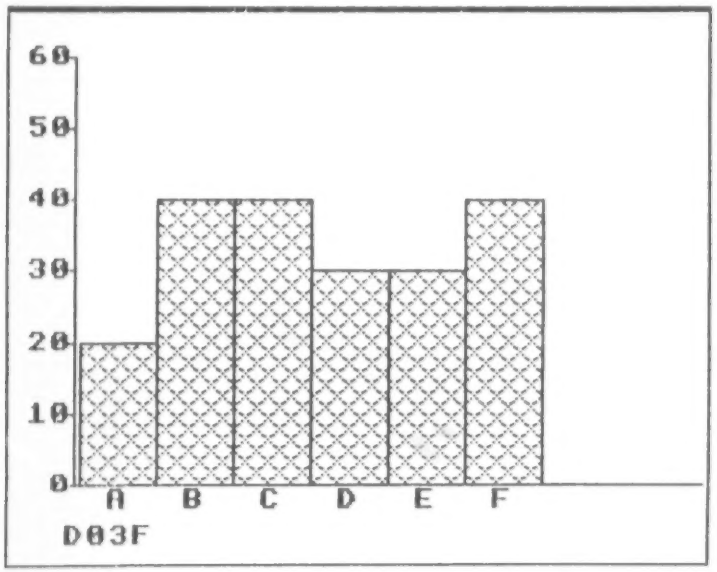


Fig.12.7 Student perception of the use of data presentation modes

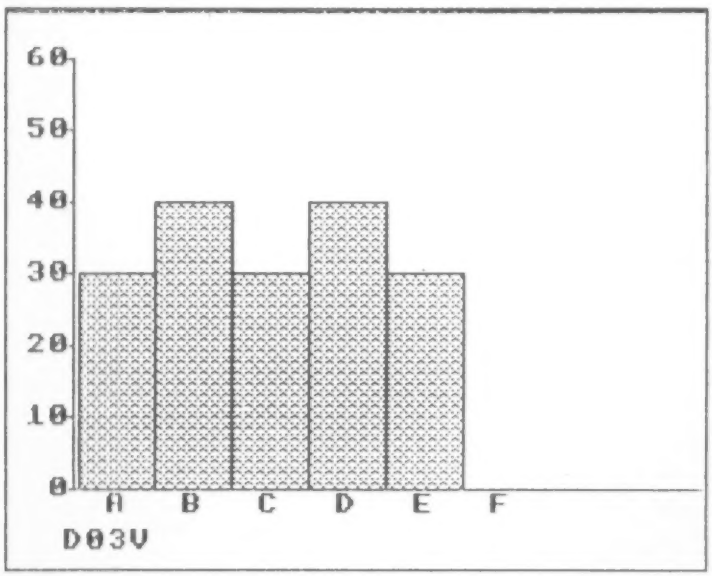


Fig.12.8 Student perception of the value of the data presentation modes

The students' evaluation of AGI compared with their experiences of Geography in Grades 8 - 10

Figure 12.9 shows that a majority of the students regarded AGI as of greater value than the 8 - 10 course, while only a small minority stated specifically that it was less valuable.

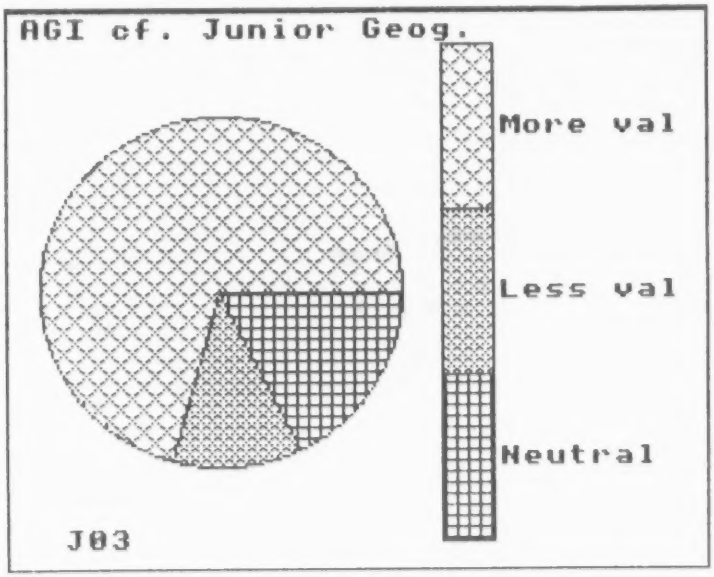


Fig.12.9 Student perceptions of AGI compared with Geography 8 - 10

The students' comments which accompanied this assessment appear to be independent of the particular teacher concerned. Accordingly, no distinction between classes will be made in selecting the comments to be reproduced below.

* "More enjoyable, interesting, an easier pace"
* "Topics interesting, exercises boring and stupid"
* "Too vague, not true geography"
* "Not text book based, interesting and relevant to our lives"
* "Less parrot learning"
* "More difficult but more interesting"
* "AGI issues are more modern; Years 8 - 10 were out-of-date"
* "It allowed research and study skills to develop, more interesting and significant topics"
* "AGI is broader and allows for greater scope - less restricting"
* "We have freedom to express our ideas - more interesting"
* "brilliant, superb, enjoyable"
* "boring, hard to study for tests"
* "Very successful, interesting and enjoyable as opposed to text book learning in yr. 8 - 10"
* "more process, less content"
* "too broad, not enough depth"
* "difficult to follow, didn't learn much"

* "more relaxed, more relevant, more work"
* "More interesting and useful than using a text book. A stimulating experience"

The attention of the reader is drawn to the preference of these students for very brief and succinct comments as compared with the more extended responses which were offered by students from many other schools.

The teachers' summary comments on AGI

These teachers all regarded the AGI course as having been successful both from their own points of view and for their students. The point was repeated several times in discussions that AGI has had a significant effect as in-service training of staff. Teachers commented that AGI had encouraged them in techniques other than 'chalk and talk' while creating appropriate assessment strategies had engendered more inter-departmental discussion than the introductions of either the Radford or ROSBA systems. The effects on both teaching styles and assessment were seen to be diffusing down the school and into other senior units. One teacher suggested that if inquiry methods of learning were to be integrated into the full geography curriculum, a course called AGI should not be necessary. However, rather than interpreting this as a call for the abandonment of AGI, it should perhaps be interpreted as a plea for other senior geography units to be renamed: Inquiries into Physical Geography, Inquiries into the Geography of Settlements, Inquiries into the geography of Development, etc.

The teachers commented on the poor library provision of the school, and cited this as one reason why they felt constrained to supply almost all the resources for the various units. The other reasons stemmed from the styles of teaching to which the students had become accustomed. The shortage of resources in the library had led to a style of AGI teaching in which students did not need to visit the library to use those resources which were there. Despite this, more able students were encouraged to seek out further information on all the various topics and many did make such an effort. For the purposes of the Independent Research Assignment, students were encouraged to visit libraries other than that in the school as well as to find other sources of information.

Despite the appearance of a highly structured course, the teachers welcomed the scope afforded by AGI for student and teacher to negotiate at least part of the geographical curriculum of the semester. Some of the teachers also commented that AGI had given them a chance to become part of the class and to work with their students rather than merely to 'teach' them.

Finally, the teachers felt that their 8 - 10 course had not been of the best, and that their experiences of AGI had enabled them to face the task of curriculum reform in that area also.

Assessing AGI

AGI at this school was assessed through a range of instruments including tests, practical and field study exercises and the students' individual inquiries. Half the total assessment was common to all classes and included a 'level test' administered to all students under exmination conditions, and the individual inquiry. The other half was class based and was created and administered by the class teachers.

The subject head suggested that the most difficult problem of the examination part of the assessment procedure was to convince the students that the ability to apply inquiry procedures was more important than a knowledge of the content. This problem was met by preparing students for their examination by using an illustratative examination which had been prepared for the Geography 16 - 19 Project and demonstrated to Brisbane teachers in a seminar conducted by Michael Naish in the Spring of 1985.

The teachers' advice to those wishing to adopt AGI

In this large school, the teachers expressed their appreciation of the opportunity for departmental co-operation which had significantly reduced the preparation load. They suggested that such co-operation between the staffs of a number of smaller schools would also be beneficial.

In planning the work programme, it was suggested that, while the types of inquiry might be selected by the teacher, allowance should be made for student input, both in the selection of the topics and in deciding where the investigation of the topic should lead. With this as an ideal, however, the teacher should give guidance to ensure that resources are either available or are easily accessible. They emphasised that the course should not be 'inquiry for inquiry's sake' but an Australian geography course in which inquiry approaches are employed - this led to the comment: "Its a lot of work, but its benefits make it all worthwhile".

These teachers felt that units should not be too long, and one teacher suggested that the ideal might be a series of relatively short inquiries linked together as a common theme.

Finally one teacher wished to emphasise that the negative aspects of geography as expressed in 'issues' and 'controversy' should not be overdone. He felt that students are now in great need of an optimistic view of life, and that studies which may lead to positive attitudes and even to positive action may be more appropriate.

-oOo-

APPENDIX A

CORRESPONDENCE

AND

EVALUATION INSTRUMENTS

PROPOSED EVALUATION DESIGN
AUSTRALIAN GEOGRAPHICAL INQUIRIES (UNIT IIIB)

A previous evaluation of the pilot syllabus investigated the implementation of A.G.I. in eleven schools.

As a result of that earlier evaluation, a number of changes to the syllabus document emerged. The present evaluation proposal is for an investigation of the implementation of the re-drafted syllabus in thirteen schools, five of which were involved in the first pilot.

In order to permit some comparisons to be made between the perceptions of teachers and students of the original and revised syllabuses in these five schools, it is proposed that the original evaluation strategy be substantially replicated with a number of additional or more detailed inquiries.

These additional and more detailed inquiries would include:

i) the attitudes of teachers and students towards the teaching/learning models suggested in the syllabus document;
ii) the place of A.G.I. within the total geography curriculum of the school;
iii) the place of A.G.I. within the total geographical education experience presented inGrades 11/12;
iv) the nature of the activities being undertaken in the pursuit of A.G.I. and
v) the sources and nature of the resources being used in the teaching/learning of constituent units of A.G.I.

As in the previous evaluation of this Unit, it is proposed that data will be collected from documentary evidence, student and teacher questionnaires and, it is hoped, informal discussions with students, teachers and subject masters/mistresses of the participating schools.

It is emphasised that the envisaged mode of evaluation is essentially democratic and that the applicant would hope to work with participants in an attempt to clarify the conditions which influence the successful implementation of the A.G.I. syllabus.

John G. Lidstone
Brisbane, 5.2.86.

BOARD OF SECONDARY SCHOOL STUDIES

P.O. Box 307,
Spring Hill, Q. 4000.

1st. Floor 445 Upper Edward Street,
Brisbane. Queensland. Australia.

Telephone: (07) 839 3994

RD:BL

27 February, 1986.

Dear Dr. Lidstone,

I wish to inform you that the Board has accepted your proposal to evaluate Unit IIIB Australian Geographical Inquiries of the Senior Syllabus in Geography.

The Board's Syllabus Officer, Mr. Robert Dudley, will be able to help you with all aspects of the evaluation.

I will set in motion the machinery needed to gather a committee for you, comprising: the State Review Panel Chairman, two teachers from the pilot schools and two members of the Geography Sub-Committee of the Social Sciences Advisory Committee. It is accepted that the actual design and implementation of the evaluation is your responsibility.

Yours sincerely,

John A. Pitman,
Executive Officer.

Dr. John G. Lidstone,
Social Studies Department,
Brisbane CAE, Kelvin Grove Campus,
Victoria Park Road,
KELVIN GROVE. Q. 4059

cc Chairman, Social Sciences SAC
Chairman, Geography State Review Panel

• Please address all communications to: -- The Executive Officer

Brisbane College of Advanced Education
130 Victoria Park Road, Kelvin Grove, Queensland 4059 Australia
Telephone: (07) 352 8111 Telegraphic Code: BRISCAE
Direct: 352 8.... Telex: CABCAE 145355

Ref:

1st August, 1986

Principals of Schools engaged in the
re-pilot of the Senior Geography Unit:
Australian Geographical Inquiries.

Dear

I have been asked by the Board of Secondary School Studies to conduct the evaluation of the re-pilot stage of the Senior Unit in Geography: Australian Geographical Inquiries.

Most of the schools piloting this course are teaching it during the current semester and with your agreement I should like to proceed with the evaluation as follows:

1. I should be grateful to receive a copy of the accredited school work program for Senior Geography and a copy of the detailed school work programme for Unit IIIB "Australian Geographical Inquiries, together with details of the number of classes and students involved and the names of their teachers. This information would be particularly helpful if it can be received well before the meeting of representatives of re-pilot schools on 4th September.

2. During the second half of the semester, I should like a questionnaire to be administered to all those students following AGI.

3. When the results of the questionnaires have been processed, I should like to visit the school and discuss the findings and the course as a whole with the teachers who have taught the course and perhaps some of the students.

4. From the questionnaire findings and the discussions, I shall prepare a draft report which will form the basis for further discussion with the Evaluation Committee established by the B.O.S.S.S. The deliberations of this committee will form the final part of the Evaluation Report on the Re-Pilot.

I sincerely hope that in this way all relevant information on the effectiveness of the AGI programme may be elicited with maximum emphasis being placed on the experiences of those concerned with teaching the course.

Should you have any queries or comments to make on the proposals outlined above, I should be pleased to discuss them with you. I enclose a copy of this letter for your Geography Subject Head and I should be grateful if you could pass that copy on. In the meantime, I look forward to meeting the teachers responsible for the course in your school later in the semester.

Yours faithfully,

(Dr) John G. Lidstone

Brisbane College of Advanced Education
130 Victoria Park Road, Kelvin Grove, Queensland 4059 Australia
Telephone: (07) 352 8111 Telegraphic Code: BRISCAE
Direct: 352 8.... Telex: CABCAE 145355

Ref:

1st August, 1986

Members of the Evaluation Committee
for the re-pilot of Senior Geography Unit IIIB:
Australian Geographical Inquiries

Dear

I understand from the B.O.S.S.S. that you have been asked to assist in the evaluation of the re-pilot of the A.G.I. Senior Geography Unit. May I thank you for agreeing to assist in this matter and briefly explain the intended evaluation procedure.

1. Most of the re-pilot schools are teaching AGI this semester and I have requested that a copy of the accredited school work programmes for Senior Geography and a copy of individual school work programmes for Unit IIIB "Australian Geographical Inquiries, together with details of the number of classes and students involved and the names of their teachers be supplied to me at this stage.

2. During the second half of the semester, I shall request that a questionnaire be administered to all those students following AGI.

3. When the results of the questionnaires have been processed, I intend to visit each school and discuss the findings and the course as a whole with the teachers who have taught the course and perhaps some of the students.

4. From the questionnaire findings and the discussions, I shall prepare a draft report which will form the basis for further discussions with you as members of the Evaluation Committee established by the B.O.S.S.S. The record of these deliberations will then form the final part of the Evaluation Report on the Re-Pilot.

I sincerely hope that in this way all relevant information on the effectiveness of the AGI programme may be elicited with maximum emphasis being placed on the experiences of those concerned with teaching the course.

Should you have any queries or comments to make on the proposals outlined above, I should be pleased to discuss them with you. In the meantime, I look forward to meeting you to discuss the data collected for the evaluation when the results become available.

Yours faithfully,

(Dr) John G. Lidstone

INITIAL QUESTIONNAIRE TO SCHOOLS ENGAGED IN THE RE-PILOT OF SENIOR GEOGRAPHY UNIT IIIB: AUSTRALIAN GEOGRAPHICAL INQUIRIES

Name of School: _____

Name of Geography Subject Head: _____

Address of School: _____

_____

Details of classes and teachers involved in Unit IIIB: Australian Geographical Inquiries:

Class 1: Grade ..... Teacher's name .....

Number of students in class: .....

Class 2: Grade ..... Teacher's name .....

Number of students in class: .....

Class 3: Grade ..... Teacher's name .....

Number of students in class: .....

Please attach this sheet to a copy of your accredited school work programme for Senior Geography and a copy of the detailed school work programme for AGI and return to:

Dr John G. Lidstone,
Brisbane C.A.E.
Social Studies Department,
Kelvin Grove,
Qld. 4059.

Thank you.

14th August, 1986

Dear ,

Re-Pilot Evaluation of Australian Geographical Inquiries

Thank you for your response to my request for details of the way you are are approaching Australian Geographical Inquiries in your school.

In due course I shall ask for further details of your assessment strategies, but in the meantime I shall make arrangements for the students' questionnaires to be printed and look forward to meeting you at the Board of Secondary School Studies in September. However, I feel that it would be advisable to delay giving the questionnaire to your students until as far into the semester as possible.

With renewed thanks for your help.

Yours sincerely,

John G. Lidstone

Friday, 26th September, 1986

Dear

Re-Pilot Evaluation of Australian Geographical Inquiries

Thank you for your response to my request for details of the way you are approaching Australian Geographical Inquiries in your school.

The Student Response Booklets for your students are enclosed. I should be grateful if you would administer the questionnaires as soon as you feel it is appropriate, bearing in mind that for your students to be able to respond meaningfully, they will need to have experienced all the various learning strategies which you intend to include in the AGI course. I realize that it may be that students will be asked to comment on some topics which they have not completed studying, and if you feel that this will overly distort their perceptions, then please feel free to delay the administration of the questionnaire until later in the semester. On the other hand, the sooner I receive the completed questionnaires, the sooner I can have them processed and get back to you to discuss the course.

Attached to this letter is a sheet to help you assist your students in the completion of the questionnaire. It would be particularly helpful if you could find the time to guide your students in this task as the booklet aims to collect a great deal of information in a very compact form. Some students may find the task a little daunting.

Thank you again for your assistance in the evaluation of the AGI syllabus, and I look forward to discussing the course with you in the near future.

Please return the completed questionnaires to:

Dr John G. Lidstone,
Brisbane C.A.E.
Social Studies Department,
Kelvin Grove Campus,
Qld., 4059

Yours sincerely,

No. of booklets enclosed:

GUIDE FOR THE COMPLETION OF THE AGI EVALUATION STUDENT RESPONSE BOOKLET

1. Please draw students' attention to the statement of purpose of the evaluation on the front cover.

2. The Identity No. box should be left blank. Please reassure students that their personal identity will not be revealed.

3. The first two boxes represent the school. Your school has been allocated the number .....

The third box represents the class within the school. Schools with only one AGI clas should enter a "1" here. Schools with more than one AGI class should allocate a number to each class and let me know the name of the teacher of each class by number.

Please inform the students of the three digits which should be inserted here.

4. High School Grade of student: 11 or 12

5. Sex: 1 or 2

6. SECTION ONE: a) Students may need reminding of the themes or titles of the inquiries they have undertaken if these have been common to the whole group. If each student has undertaken a different range of inquiries, s/he should list those s/he has undertaken individually.

b) Self explanatory but students may have their confidence booted by emphasising that we want to improve senior geography units for future students and that their opinions are valued.

7. SECTION TWO: Please remind students that a rating (not a ranking) is required for each of these resources on the basis of how often each resource has been used in their work in AGI.

8. SECTION THREE: A similar rating is required here but this time based on the students' opinions of the worth of each resource in their studies.

9. SECTION FOUR: Please instruct students to respond to part a) completely before going back to complete part b).

a) Students should be asked to respond to each and every inquiry description according to the numerical code given. Students may need to have the significance of the numbers 1 - 5 explained to them at this stage.

b) Students may need to have the difference between the numerical codes used in a) and the likert scales used in b) pointed out. Whereas a) investigated the frequency with which they have experienced each type of inquiry, b) investigates their feelings about the various types of inquiry they have undertaken. Please emphasise that they should only respond here to those inquiry descriptions to which they have already allocated a value of 1 - 4 in a). (They should also be reminded that the polarity of the adjectival pairs have been randomly allocated and so each pair of adjectives should be considered carefully).

Please discourage students from looking back and forth through the booklet as they make their decisions. It is their immediate reactions which are of most value here.

From my own experience in administering such surveys, I consider that they are most efficiently completed when the teacher directs the students to complete one section of the questionnaire at a time and reads through the directions to each section before instructing the students to proceed. However, since individual teachers have their own preferred methods of classroom management, I am happy to leave the decision on how best to handle the survey to the professional expertise of classroom colleagues.

Once again, may I express my thanks to you for devoting the time to these evaluation procedures and ask you to pass on my thanks to your students who complete the questionnaire

JGL. 26.9.86

BOARD OF SECONDARY SCHOOL STUDIES

EVALUATION OF SENIOR UNIT IIIB

AUSTRALIAN GEOGRAPHICAL INQUIRIES

Student Response Booklet

Dear Student,

You are one of about five hundred students who are being asked to give their views on the new senior unit in geography: "Australian Geographical Inquiries".

The purpose of the evaluation is to help the Board of Secondary School Studies to decide if the course should be offered to all senior geography students in the State. It is NOT intended to judge you, or your teacher, or your school.

This survey is in four sections. Your teacher will read through the instructions for each section with you. When you are asked to give your responses, please work through the section fairly quickly without looking back and forth through the other questions.

Your teacher will tell you what to put in the boxes below.

Thank you for filling in this survey. You will be helping the Board to make the units studied by High School students as interesting and valuable as possible.

John G. Lidstone

Identity No. (leave blank)

School/Class No.

High School Grade (11 or 12)

Sex (Girl = 1, Boy = 2)

Evaluator: John G. Lidstone

SECTION ONE

a) During this semester you have inquired into a number of features relating to the geography of Australia.

Please list below the themes or titles of the main inquiries you have followed:

1. _____

_____

2. _____

_____

3. _____

_____

_____

4. _____

_____

5. _____

_____

_____

b) Please describe your feelings about the AGI unit as a whole compared with the types of geography lessons you experienced in Grades 8 - 10.

_____

_____

_____

_____

_____

c) Please describe your feelings about the AGI course as a whole compared with the other units in geography you have studied in Grades 11 - 12. (If you have just completed AGI in Semester 1 of Grade 11, please leave this question.)

d) Which theme or topic did you find most valuable during the semester?

Please explain what it was about this theme which made it the most valuable one for you:

e) Which theme or topic did you find least valuable during this semester?

Please explain what it was about this theme which made it the least valuable one for you:

SECTION TWO

a) Here is a list of resources which you may have used during your studies in AGI. Please rate the importance of each of these resources to your course as follows:

If the resource has been of overwhelming importance to you in your work in AGI, then place a "1" in the box. If you did not use the resource in your AGI work at all, then place a "5" in the box. Between 1 and 5, 2 = you used that resource quite a lot; 3 = you used the resource sometimes; 4 = you used the resource only a very little during the semester.

School level text books
College level text books
Magazine articles
Film strips/slides
Videos/films
Encyclopoedias
Photocopies provided by your teacher
Books of statistical tables
Atlases
Novels and/or poems
Handouts from industries and firms
Government information sheets and reports
Information sheets from community groups such as the Environment Council

Topographical and cadastral maps
Audio tapes
Field investigations
Visiting speakers
Visits out of school
Teacher prepared worksheets
Laboratory type equipment for experiments
Photographs
Tables of figures
Written descriptions
Diagrams
Maps (atlas or topo)
Graphs

SECTION THREE

a) In this section you are asked to give your opinion of the resourcesavailable to you. Please rate each resource which you actually used at some time during the semester according to the following scheme. If you did not use a particular resource, then leave the box empty.

1 = Extremely useful in helping with my inquiries this semester;
2 = Very useful in helping with my inquiries this semester;
3 = Quite useful in helping with my inquiries this semester;
4 = Only slightly useful in helping with my inquiries this semester;
5 = This resource was of no real use in helping with my inquiries

School level text books
College level text books
Magazine articles
Film strips/slides
Videos/films
Encyclopoedias
Photocopies provided by your teacher
Books of statistical tables
Atlases
Novels and/or poems
Handouts from industries and firms
Government information sheets and reports
Information sheets from community groups such as the Environment Council
Topographical and cadastral maps
Audio tapes
Field investigations
Visiting speakers
Visits out of school
Teacher-prepared worksheets
Laboratory-type equipment for experiments
Photographs
Tables of figures
Written descriptions
Diagrams
Maps (atlas or topo)
Graphs

SECTION FOUR

This section of the survey lists twenty different ways of following geographical inquiries.

a) Please read through each description of a type of inquiry activity. Beside each description is a box with a double line around it. Please rate each type of inquiry in this box as follows. (Ignore the other words and boxes between the descriptions at this stage.)

1 = This type of inquiry occupied most of my geography studies this semester;
2 = This type of inquiry has played a fairly important part in my geography studies this semester;
3 = I have had some experience of this type of inquiry this semester;
4 = I have had only a very little experience of this type of inquiry this semester;
5 = I have had no experience of this type of inquiry this semester.

RATE EACH OF THE TYPES OF INQUIRY IN THE DOUBLE LINED BOX NOW

b) Now go back over those descriptions of inquiries to which you gave a 1, 2, 3 or 4 in a) above.

Under each description are six pairs of words which have opposite meanings. Between each pair of words are five spaces. These spaces let you say how strongly you feel that one or other of the words at each end of the line describes your feelings about the type of inquiry.

Please put a tick on each line to show how strongly you feel that each word describes your feeling about the different types of geographical inquiry.

Here are some examples:

Useful✓:---:---:---:---:---Useless means "I think filmstrips are very useful

Useful---:---:---:---:✓---:---Useless means "I think filmstrips are fairly useless

Remember: Look carefully at the words at both ends of the lines before chosing - they are not always in the same order.

1. An inquiry into a particular problem such as how to overcome traffic problems in the central district of a city.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Strong	____:____:____:____:____	Weak
Unhelpful	____:____:____:____:____	Helpful

2. An inquiry into a wider issue such as the ways in which the resources of northern Australia should be developed.

Boring	____:____:____:____:____	Interesting
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

3. An inquiry in which you are required to create a new or imaginative approach to a problem such as writing a poem, developing a computer simulation or designing an alternative town plan for your own community.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Unhelpful	____:____:____:____:____	Helpful

4. An inquiry which examines the goodness, beauty or worth of some scheme such as putting a list of alternatives for re-developing the inner area of a metropolitan city into an order of priority or making a list of priorities for deciding whether an area should be preserved as a national park.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

5. An inquiry which asks you or others to clarify individual personal perceptions of an area, a city or an idea such as "wilderness", "your neighbourhood" or a far-off city such as Calcutta or London.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Slow	____:____:____:____:____	Fast
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

6. Inquiries which involve you in manipulating statistics to find an answer, such as correlating data on the Darling Downs to find a link between soils and land use.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Strong	____:____:____:____:____	Weak
Unhelpful	____:____:____:____:____	Helpful

7. Inquiries which are based on experiments such as studying how sediment in muddy water settles on an irregularly shaped base of a glass fronted tank.

Boring	____:____:____:____:____	Interesting
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

8. Inquiries based on field study such as land use studies or links between relief and land use in a valley.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Unhelpful	____:____:____:____:____	Helpful

9. Inquiries which involve you in library research to find the answer to a problem such as how noxious weeds affect agriculture in south east Queensland.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

10. Inquiries into problems which have been invented by your teacher and which you are then set to solve either by yourself or with a group of fellow students.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Slow	____:____:____:____:____	Fast
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

11. Inquiries into problems which you have selected yourself as being either important or particularly interesting.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Strong	____:____:____:____:____	Weak
Unhelpful	____:____:____:____:____	Helpful

12. Inquiries into one of a list of problems which your teacher has presented to you for you to select from.

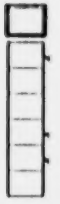
Boring	____:____:____:____:____	Interesting
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Pleasant	____:____:____:____:____	Unpleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful

13. Inquiries into problems which have been selected by the class as a whole as being either important or particularly interesting.

Interesting	____:____:____:____:____	Boring
Unimportant	____:____:____:____:____	Important
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Unhelpful	____:____:____:____:____	Helpful

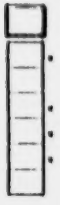
14. Inquiries in which your teacher tells you what to do at each stage so that you know exactly what is required of you and when you have reached the end of the inquiry.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Fast	____:____:____:____:____	Slow
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful



15. Inquiries where your teacher is available to help you but only when you need help with a particular problem and ask for it.

Boring	____:____:____:____:____	Interesting
Important	____:____:____:____:____	Unimportant
Slow	____:____:____:____:____	Fast
Unpleasant	____:____:____:____:____	Pleasant
Weak	____:____:____:____:____	Strong
Helpful	____:____:____:____:____	Unhelpful



16. Inquiries where your teacher is only present in the room to keep order.

Interesting	___	___	___	___	___	Boring	
Unimportant	___	___	___	___	___	Important	*
Fast	___	___	___	___	___	Slow	
Pleasant	___	___	___	___	___	Unpleasant	
Strong	___	___	___	___	___	Weak	
Unhelpful	___	___	___	___	___	Helpful	*

17. Inquiries where your teacher provides all the information and resources you need.

Boring	___	___	___	___	___	Interesting	*
Unimportant	___	___	___	___	___	Important	*
Fast	___	___	___	___	___	Slow	
Pleasant	___	___	___	___	___	Unpleasant	
Weak	___	___	___	___	___	Strong	*
Helpful	___	___	___	___	___	Unhelpful	

18. Inquiries where you are expected to find the information and resources you need either in the school library or elsewhere.

Interesting	___	___	___	___	___	Boring	
Unimportant	___	___	___	___	___	Important	*
Fast	___	___	___	___	___	Slow	
Unpleasant	___	___	___	___	___	Pleasant	*
Weak	___	___	___	___	___	Strong	*
Unhelpful	___	___	___	___	___	Helpful	*

19. Inquiries in which you work alone to research the topic and produce a final report for assessment.

Boring	___	___	___	___	___	Interesting	*
Important	___	___	___	___	___	Unimportant	
Fast	___	___	___	___	___	Slow	
Unpleasant	___	___	___	___	___	Pleasant	*
Weak	___	___	___	___	___	Strong	*
Helpful	___	___	___	___	___	Unhelpful	

20. Inquiries in which you work as part of a group to research the topic and produce a group report for assessment.

Boring	___	___	___	___	___	Interesting	*
Important	___	___	___	___	___	Unimportant	
Slow	___	___	___	___	___	Fast	*
Unpleasant	___	___	___	___	___	Pleasant	*
Weak	___	___	___	___	___	Strong	*
Helpful	___	___	___	___	___	Unhelpful	

NOW GO BACK AND READ THE INSTRUCTIONS FOR PART (b) OF THIS SECTION

Outline Schedule for Teacher Discussions on A.G.I.

1. General information

School:

No. Classes of AGI taught

Years experience of AGI (School)

Years experience of AGI (Teacher)

Teacher's background: Quals -

Years of teaching -

When AGI taught and other senior units:

Sem 1: Sem 2:

Sem 3: Sem 4:

2. The nature of AGI

Please comment on the help offered in the syllabus in defining 'Inquiry'.

Please comment on the theoretical readings which have been supplied

What do you see as the major thrust of AGI - Australia (the country); Geographical (Systematic study); Inquiries (Teaching/Learning methodology)?

Please comment on the differences as you see them between AGI and other senior units

3. The Work Programme

How did you decide when in the senior course to teach AGI?

Was this a good decision?

Please comment on the use of the Core and Content Matrix (p. 10) and the general statements (p. 13/14). Did you find the apparent contradictions problematic?

Would you describe your work programme as:
i) a series of discrete inquiries?
ii) an integrated series of inquiries?
iii) an extended inquiry?

How were the topics chosen? (p. 11)

For what reason were they chosen?

The syllabus document (p. 10) demands that "the full range of inquiry processes and skills" should be developed. They are listed on pages 6,7 & 10. Do you use any specific techniques for ensuring that all these objectives are covered?

What have been the greatest influences on the processes developed in the course - the topic?
- the resources available?
- the strengths/weaknesses of the students?
- the list of processes presented in the syllabus?

Please comment on the perceptions of your students of the frequency with which various types of inquiry were undertaken.

Please comment on the valuations of your students of the various types of inquiry which were undertaken

4. The topics

Which topic do you feel was the most successful? Why?

Which topic was the least successful? Why?

Please comment on your students' perceptions of the most valuable and least valuable topics.

5. The resources

Please comment on the sources of resources for the course. To what extent are they teacher provided and to what extent are the students able to select or find their own resources?

Please comment on the students' perceptions of:
- the resources they used during the semester and the amount of use made of each resource:

- the students' valuations of each resource:

- the use and evaluation of the basic data presentation modes

6. The students

How many students did not complete 8 - 10 geography? Is this a factor in the construction of the work program?

Are there any institutional constraints influencing students' choice of whether or not to do senior geography?

Does AGI appear to appeal to a different type of student to other senior geography units?

To what extent can your work programme take account of the differences in interests and aptitudes of various individual students?

How does AGI compare with other senior units in terms of student interest, motivation, enjoyment and success?

7. Teaching

Is the relationship between teacher and student different in AGI lessons that in other senior units? How?

To what extent do you feel that the methodology of AGI should be integrated into other senior units?

Please comment on the opinions of your students on the relative values of AGI and the other senior units.

To what extent do you feel that the methodology of AGI should be integrated into 8 - 10 geography courses?

Please comment on the opinions of your students on the relative values of AGI and other senior units they have studied.

8. Assessment strategies

Do I have copies of your assessment strategies for AGI?

Is there a different emphasis to your assessment of AGI cf. other units? Please explain the differences in terms of content (Australia), Skills and Processes (Geography) and Inquiry (Research methodology).

Have you experienced any particular problems in assessing this unit?

How do the results of your students in AGI correlate with their results in other units?

9. AGI

Do you consider that the AGI course is a viable course for general implementation as it is currently presented?

10. Advice

What comments or advice would you offer to other teachers considering adopting AGI in terms of:
Drafting work programs and selecting topics -

Selecting and finding resources -

Assessment -

The selections of students to follow AGI as compared with other units?

Thank you.

Brisbane College of Advanced Education
130 Victoria Park Road, Kelvin Grove. Queensland 4059 Australia
Telephone: (07) 352 8111 Telegraphic Code: BRISCAE
Direct: 352 8.... Telex: CABCAE 145355

Ref:

18th May, 1987

To members of the Evaluation Committtee

Dear

As a member of the Evaluation Committee appointed by the Board of Secondary School Studies for the second pilot of the Senior Geography Unit IIIB "Australian Geographical Inquiries", you will by now have received a draft copy of my evaluation report direct from the Board.

This letter is an invitation to attend a meeting of the evaluation panel to be held on Wednesday, May 27th at 4 pm. in my room (B102) in the Social Studies Department at the Kelvin Grove Campus of the B.C.A.E.

The agenda for the meeting will be as follows:

4.00 - 4.15	Evaluation Report (J. G. Lidstone)
4.15 - 4.30	Questions and comments on the report
4.30 - 5.00	Preparation of section on "Advice to Principals and Teachers"

I look forward to seeing you on the 27th.

John G. Lidstone

APPENDIX B

STATISTICAL DATA

FROM

STUDENT QUESTIONNAIRE

STATISTICAL DATA FROM STUDENT QUESTIONNAIRE

The data for each school are presented as two spreadsheets:

1. Attitudes and Experience of AGI students to the Inquiry Types
2. Resource Use and Perception of Value

The letter codes are the same as those used in the graphics incorporated into this document (see legends).

The Headings are codified as follows:

Inquiries spreadsheet:

EN Number of students who responded to the section
EMEAN Mean score allocated to the question on inquiry experience according to the Student Response Booklet.
EMODE Modal score allocated to the question on inquiry experience according to the Student Response Booklet.
ESD Standard Deviation of scores pertaining to experience of Inquiries
VN Number of students who responded to the section on inquiries value
VMEAN Mean score allocated to the question on inquiries' value according to the Student Response Booklet.
VSD Standard Deviation of scores pertaining to the value of inquiries
GE Mean score allocated to the question on inquiry experience with polarity reversed.
GV Mean score allocated to the question on inquiries' value with polarity reversed.

Resources spreadsheet

FMEAN Mean scores allocated to the question on frequency of use of resources
FMODE Modal value of scores allocated to the question on frequency of use of resources
FSD Standard Deviation of scores above
FN Number of students who responded to the question on frequency of use of resources
VMEAN Mean scores allocated to the question on the value of resources
VMODE Modal scores allocated to the question on the value of resources
VSD Standard Deviation of scores for value of resources
VN Number of students who responded to question on value of resources
GF Mean scores on frequency of resource use with polarities reversed
GV Mean scores on the value of the resources with polarities reversed
FM Modal scores on frequency of resource use with polarities reversed
VM Modal scores on the value of the resources with polarities reversed

Responses to Inquiry-type Use and Value of School 1

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM
A	3.33	3	1.12	36	3.15	3	1.37	33	2.67	2.85	3
B	4.14	4	0.87	36	3.50	5	1.41	24	1.86	2.50	2
C	2.42	2	0.97	36	2.11	1	1.18	35	3.58	3.89	4
D	2.51	2	1.07	37	2.33	2	1.11	33	3.49	3.67	4
E	2.05	1	1.03	37	2.00	1	1.14	35	3.95	4.00	5
F	3.70	4	1.10	37	3.50	3	1.17	30	2.30	2.50	2
G	1.62	1	0.83	37	1.66	1	0.87	35	4.38	4.34	5
H	3.03	2	1.18	37	3.15	3	1.09	33	2.97	2.85	4
I	2.54	3	1.02	37	2.82	3	1.29	33	3.46	3.18	3
J	4.75	5	0.84	37	4.90	5	0.46	19	1.25	1.10	1
K	3.61	5	1.27	37	3.92	5	1.19	25	2.39	2.08	1
L	3.27	4	1.22	37	3.14	2	1.21	28	2.73	2.86	2
M	3.00	2	1.49	37	2.70	3	1.45	37	3.00	3.30	4
N	3.05	3	1.05	37	3.79	5	1.20	28	2.95	2.21	3
O	4.19	5	1.06	36	2.97	3	1.24	29	1.81	3.03	1
P	3.57	4	1.14	37	4.18	5	1.30	22	2.43	1.82	2
Q	4.58	5	0.81	36	2.63	3	1.36	27	1.42	3.37	1
R	3.35	3	1.25	37	2.23	1	1.20	31	2.65	3.77	3
S	2.38	1	1.30	37	4.27	5	1.03	22	3.62	1.73	5
T	4.58	5	0.81	36	3.44	4	1.11	32	1.42	2.56	1
DATA PRESENTATION											
A	3.09	3	1.04	35	3.16	3	1.13	31	2.91	2.84	3
B	3.03	3	1.09	37	2.70	3	1.29	30	2.97	3.30	3
C	2.92	3	1.06	37	2.53	2	1.30	32	3.08	3.47	3
D	2.43	2	0.99	37	2.28	1	1.20	32	3.57	3.72	4
E	2.54	2	1.22	37	2.73	2	1.26	33	3.46	3.27	4
F	2.68	2	1.23	37	2.50	1	1.52	6	3.32	3.50	4

Responses to Resource Use and Value of School 1

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	34	3.77	5	1.23	20	2.93	0.61	2.23	3.07
B	34	3.44	5	1.54	18	2.82	0.87	2.56	3.18
C	34	3.88	5	1.18	18	2.82	0.77	2.12	3.18
D	34	3.27	3	1.21	24	2.34	0.66	2.73	3.66
E	34	3.38	3	1.07	28	3.15	0.90	2.62	2.85
F	35	3.31	3	1.37	25	3.03	0.96	2.69	2.97
G	32	4.47	5	1.02	9	3.76	0.91	1.53	2.24
H	33	3.55	3	1.06	25	2.94	0.93	2.45	3.06
I	34	3.53	5	1.50	21	2.68	1.01	2.47	3.32
J	33	2.73	3	1.33	28	2.24	0.87	3.27	3.76
K	35	2.09	2	0.89	35	1.92	0.71	3.91	4.08
L	35	2.20	2	1.11	33	2.39	0.65	3.80	3.61
M	35	2.09	2	1.04	35	2.39	0.80	3.91	3.61
N	34	2.82	3	1.14	32	2.52	0.74	3.18	3.48
O	34	2.06	1	1.13	32	2.50	0.73	3.94	3.50
P	34	2.47	2	1.05	31	2.80	1.34	3.53	3.20
Q	35	2.57	2	1.01	33	2.71	0.87	3.43	3.29
R	35	2.43	2	1.09	31	2.39	0.75	3.57	3.61
S	35	2.29	2	1.05	31	2.07	0.83	3.71	3.93
T	33	3.03	3	1.10	28	2.61	0.86	2.97	3.39

Responses to Inquiry-type Use and Value of School 2

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	4.39	5	1.24	18	2.82	5	1.54	11	1.61	3.18	1	1
B	5.00	5	0.00	18	4.00	5	1.67	6	1.00	2.00	1	1
C	4.22	5	1.00	18	2.75	2	1.42	12	1.78	3.25	1	4
D	3.83	5	1.25	18	2.64	1	1.57	11	2.17	3.36	1	5
E	3.39	2	1.15	18	2.79	1	1.48	14	2.61	3.21	4	5
F	2.72	1	1.57	18	2.44	1	1.63	16	3.28	3.56	5	5
G	3.06	3	1.39	18	2.93	2	1.39	14	2.94	3.07	3	4
H	3.41	3	1.33	17	3.40	2	1.12	15	2.59	2.60	3	4
I	2.83	2	0.92	18	3.20	2	1.27	15	3.17	2.80	4	4
J	4.72	5	0.96	18	4.11	5	1.45	9	1.28	1.89	1	1
K	3.06	3	1.21	18	2.60	3	0.91	15	2.94	3.40	3	3
L	4.06	5	1.00	18	3.00	5	1.38	12	1.94	3.00	1	1
M	4.00	5	1.50	18	2.67	3	1.85	18	2.00	3.33	1	3
N	3.75	5	1.24	16	3.22	3	1.48	9	2.25	2.78	1	3
O	4.20	5	1.37	15	2.00	1	1.16	13	1.80	4.00	1	5
P	2.20	1	1.21	15	2.88	2	1.81	8	3.80	3.12	5	4
Q	4.63	5	1.09	16	2.80	1	1.61	15	1.37	3.20	1	5
R	2.63	3	1.15	16	2.92	1	1.55	13	3.37	3.08	3	5
S	2.75	2	1.34	16	4.38	5	0.92	8	3.25	1.62	4	1
T	4.88	5	0.34	16	3.43	3	1.09	14	1.12	2.57	1	3
DATA PRESENTATION												
A	4.06	5	1.00	16	3.71	3	1.07	14	1.94	2.29	1	3
B	2.88	3	1.03	16	2.71	2	1.27	14	3.12	3.29	3	4
C	2.60	3	1.18	15	2.71	3	1.20	14	3.40	3.29	3	3
D	2.53	1	1.36	15	3.00	3	1.18	14	3.47	3.00	5	3
E	2.87	2	1.19	15	2.36	2	1.01	14	3.13	3.64	4	4
F	2.86	2	0.95	14	2.86	1	1.77	7	3.14	3.14	4	5

Responses to Resource Use and Value of School 2

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	18	4.78	5	0.65	2	4.42	0.83	1.22	1.58
B	17	4.88	5	0.49	1	3.17	0.00	1.12	2.83
C	18	2.56	2	0.86	15	2.59	0.89	3.44	3.41
D	16	4.69	5	0.79	2	3.25	0.35	1.31	2.75
E	18	2.89	3	0.90	18	3.24	1.15	3.11	2.76
F	18	3.67	3	1.03	14	2.80	0.84	2.33	3.20
G	17	4.77	5	0.75	2	2.67	0.47	1.23	3.33
H	17	2.12	2	0.99	15	2.18	0.83	3.88	3.82
I	18	2.17	2	0.92	16	2.92	1.09	3.83	3.08
J	18	3.11	3	0.32	11	2.76	1.26	2.89	3.24
K	16	2.81	3	0.75	14	2.29	0.73	3.19	3.71
L	18	4.67	5	0.69	3	2.39	1.21	1.33	3.61
M	17	4.71	5	0.69	2	2.58	2.24	1.29	3.42
N	18	3.11	4	1.02	15	3.11	0.95	2.89	2.89
O	18	1.17	1	0.38	17	2.35	1.11	4.83	3.65
P	15	2.67	4	1.40	15	2.76	1.48	3.33	3.24
Q	15	3.80	4	1.08	11	2.70	0.85	2.20	3.30
R	13	1.46	1	0.97	13	2.05	1.17	4.54	3.95
S	15	1.87	2	0.64	15	2.10	0.73	4.13	3.90
T	15	2.47	2	1.13	12	2.13	1.04	3.53	3.87

Responses to Inquiry-type Use and Value of School 3

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM
A	2.57	2	0.90	44	2.76	3	1.10	42	3.43	3.24	4
B	3.88	5	1.42	43	2.71	3	1.27	21	2.12	3.29	1
C	3.25	3	1.08	44	3.08	3	1.08	38	2.75	2.92	3
D	3.48	2	1.14	43	3.17	4	1.20	29	2.52	2.83	4
E	3.07	3	1.13	44	2.90	3	1.06	38	2.93	3.10	3
F	2.67	3	1.25	43	2.51	3	1.22	35	3.33	3.49	3
G	2.70	2	1.08	44	2.25	2	1.06	40	3.30	3.75	4
H	2.30	1	1.26	43	2.02	1	0.98	42	3.70	3.98	5
I	3.12	3	1.09	42	2.94	2	1.01	34	2.88	3.06	3
J	4.72	5	0.77	43	4.46	5	0.69	11	1.28	1.54	1
K	3.49	4	1.24	43	3.07	4	1.18	28	2.51	2.93	2
L	2.93	3	1.27	44	2.62	4	1.13	34	3.07	3.38	3
M	3.11	3	1.43	44	2.25	4	1.73	44	2.89	3.75	3
N	3.50	3	1.02	44	3.15	3	1.29	27	2.50	2.85	3
O	3.79	5	1.19	43	3.09	3	1.36	33	2.21	2.91	1
P	3.49	5	1.26	43	3.03	3	1.05	40	2.51	2.97	1
Q	3.14	4	1.13	44	3.03	2	1.30	30	2.86	2.97	2
R	3.63	4	1.11	43	2.24	2	1.03	42	2.37	3.76	2
S	2.25	1	1.20	44	4.83	5	0.41	6	3.75	1.17	5
T	4.67	5	0.81	43	3.38	3	1.87	21	1.33	2.62	1
DATA PRESENTATION											
A	3.67	5	1.25	43	2.18	1	1.11	38	2.33	3.82	1
B	2.35	3	1.04	43	2.56	3	1.05	39	3.65	3.44	3
C	2.59	2	1.21	44	2.46	2	1.17	37	3.41	3.54	4
D	2.30	2	1.10	43	2.56	3	1.11	36	3.70	3.44	4
E	2.65	3	1.13	43	2.41	2	1.16	39	3.35	3.59	3
F	2.26	3	1.12	43	2.39	1	1.19	13	3.74	3.61	3

Responses to Resource Use and Value of School 3

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	44	4.16	5	1.31	13	2.94	0.59	1.84	3.06
B	44	3.82	5	1.28	26	2.86	0.78	2.18	3.14
C	44	4.59	5	0.87	10	3.00	0.58	1.41	3.00
D	44	3.82	5	1.35	22	2.87	0.87	2.18	3.13
E	44	3.64	5	1.56	20	2.60	0.66	2.36	3.40
F	44	2.34	1	1.36	35	2.90	0.96	3.66	3.10
G	44	4.77	5	0.57	6	3.28	0.75	1.23	2.72
H	44	3.80	5	1.34	23	2.65	0.96	2.20	3.35
I	44	2.66	1	1.57	29	2.91	0.78	3.34	3.09
J	44	2.05	1	1.20	37	2.77	0.69	3.95	3.23
K	44	2.00	1	1.18	38	2.22	0.79	4.00	3.78
L	44	3.27	5	1.42	27	2.83	0.63	2.73	3.17
M	44	4.61	5	0.90	8	2.67	0.31	1.39	3.33
N	44	4.27	5	1.07	16	3.10	0.94	1.73	2.90
O	44	2.61	3	1.08	35	2.82	0.73	3.39	3.18
P	44	3.82	5	1.42	18	2.93	1.12	2.18	3.07
Q	44	3.93	5	1.19	21	3.00	0.76	2.07	3.00
R	44	1.61	1	0.97	36	2.63	0.91	4.39	3.37
S	44	1.75	1	1.01	36	2.73	0.93	4.25	3.27
T	44	4.14	5	1.13	18	2.57	0.67	1.86	3.43

Responses to Inquiry-type Use and Value of School 4

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	2.86	4	1.42	21	2.48	2	1.12	21	3.14	3.52	2	4
B	4.29	5	0.96	21	3.67	4	1.05	15	1.71	2.33	1	2
C	2.67	3	0.73	21	2.48	3	0.87	21	3.33	3.52	3	3
D	2.43	2	1.12	21	2.60	1	1.27	20	3.57	3.40	4	5
E	1.81	1	0.93	21	1.67	1	0.86	21	4.19	4.33	5	5
F	3.29	4	1.19	20	2.90	2	1.21	20	2.71	3.10	2	4
G	1.95	1	1.12	21	1.86	1	0.79	21	4.05	4.14	5	5
H	2.91	3	1.14	21	2.84	3	1.07	19	3.09	3.16	3	3
I	3.24	3	1.09	21	3.14	4	1.01	21	2.76	2.86	3	2
J	4.81	5	0.51	21	4.78	5	0.67	9	1.19	1.22	1	1
K	3.00	2	1.34	21	3.00	3	1.00	17	3.00	3.00	4	3
L	2.45	2	0.95	21	2.85	3	0.93	20	3.55	3.15	4	3
M	3.67	5	1.28	21	2.86	3	1.39	21	2.33	3.14	1	3
N	3.10	3	1.00	21	3.09	3	1.38	11	2.90	2.91	3	3
O	4.24	5	1.00	21	2.11	1	1.32	18	1.76	3.89	1	5
P	2.29	2	1.15	21	3.78	3	1.20	9	3.71	2.22	4	3
Q	4.81	5	0.51	21	2.00	2	0.88	19	1.19	4.00	1	4
R	2.86	2	1.15	21	2.30	2	1.34	20	3.14	3.70	4	4
S	2.00	2	0.95	21	4.63	5	0.74	8	4.00	1.37	4	1
T	4.86	5	0.36	21	3.24	4	1.03	17	1.14	2.76	1	2
DATA PRESENTATION												
A	3.91	5	1.18	21	2.68	3	1.00	19	2.09	3.32	1	3
B	3.19	2	1.12	21	3.11	3	1.32	18	2.81	2.89	4	3
C	3.00	4	1.27	21	2.84	2	1.07	19	3.00	3.16	2	4
D	2.29	2	0.85	21	2.45	2	0.95	20	3.71	3.55	4	4
E	2.48	2	0.87	21	2.82	3	1.19	17	3.52	3.18	4	3
F	2.91	3	0.63	21	3.00	2	1.41	4	3.09	3.00	3	4

Responses to Resource Use and Value of School 4

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	21	3.05	2	1.24	14	2.83	0.59	2.95	3.17
B	21	2.52	2	1.29	14	2.54	0.35	3.48	3.46
C	21	2.24	2	1.04	15	2.62	1.01	3.76	3.38
D	20	2.60	2	0.68	16	2.49	0.65	3.40	3.51
E	21	1.91	2	0.63	17	2.19	0.81	4.09	3.81
F	21	3.29	3	0.78	16	2.82	0.56	2.71	3.18
G	21	4.19	4	0.75	9	2.94	0.80	1.81	3.06
H	21	3.05	3	0.92	15	2.50	0.58	2.95	3.50
I	21	2.38	2	0.74	17	2.54	0.88	3.62	3.46
J	21	2.71	2	0.96	17	2.56	0.67	3.29	3.44
K	21	2.71	3	0.96	16	2.27	0.62	3.29	3.73
L	21	3.48	2	1.29	11	2.58	0.42	2.52	3.42
M	21	1.95	2	0.81	15	2.59	0.54	4.05	3.41
N	21	3.05	3	1.02	13	3.05	0.65	2.95	2.95
O	21	2.05	1	1.07	16	2.39	0.68	3.95	3.61
P	21	3.48	5	1.54	8	3.08	1.39	2.52	2.92
Q	21	3.14	3	0.66	17	2.78	0.49	2.86	3.22
R	21	2.29	1	1.23	16	2.43	0.77	3.71	3.57
S	21	1.95	1	1.02	17	2.51	0.94	2.51	0.94
T	21	2.14	2	0.66	16	2.42	0.59	3.86	3.58

Responses to Inquiry-type Use and Value of School 5

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	1.89	2	0.63	28	1.79	1	0.79	28	4.11	4.21	4	5
B	4.54	5	0.92	28	4.00	5	1.37	16	1.46	2.00	1	1
C	3.46	3	0.96	28	3.04	3	1.02	27	2.54	2.96	3	3
D	2.50	2	0.92	28	2.64	3	0.87	28	3.50	3.36	4	3
E	2.43	2	1.00	28	2.43	3	0.84	28	3.57	3.57	4	3
F	3.36	4	1.06	28	2.89	3	0.93	27	2.64	3.11	2	3
G	2.82	3	0.86	28	3.00	3	0.67	28	3.18	3.00	3	3
H	2.82	3	1.02	28	2.71	3	0.98	28	3.18	3.29	3	3
I	2.32	2	0.72	28	2.63	2	1.15	24	3.68	3.37	4	4
J	4.93	5	0.26	28	4.68	5	0.75	19	1.07	1.32	1	1
K	3.93	4	0.86	28	3.17	4	1.13	24	2.07	2.83	2	2
L	3.74	4	0.90	27	2.96	3	1.09	22	2.26	3.04	2	3
M	3.86	5	1.43	28	2.89	4	1.40	28	2.14	3.11	1	2
N	3.25	3	0.84	28	2.92	2	1.13	26	2.75	3.08	3	4
O	3.36	3	1.03	28	2.14	2	1.08	28	2.64	3.86	3	4
P	2.50	2	1.07	28	4.00	5	1.46	15	3.50	2.00	4	1
Q	4.68	5	0.95	28	2.29	3	1.08	24	1.32	3.71	1	3
R	3.36	4	1.03	28	2.52	3	0.98	27	2.64	3.48	2	3
S	2.70	3	1.00	27	4.47	5	0.83	15	3.30	1.53	3	1
T	4.82	5	0.55	28	3.39	3	0.84	23	1.18	2.61	1	3
DATA PRESENTATION												
A	4.04	5	1.06	27	2.63	3	1.04	27	1.96	3.37	1	3
B	2.93	3	0.60	28	2.80	3	1.04	25	3.07	3.20	3	3
C	3.19	3	0.85	26	2.41	3	0.89	27	2.81	3.59	3	3
D	2.61	2	0.88	28	2.32	2	1.02	28	3.39	3.68	4	4
E	2.43	2	0.92	28	2.36	2	0.91	28	3.57	3.64	4	4
F	2.39	2	0.96	28	2.22	1	1.30	9	3.61	3.78	4	5

Responses to Resource Use and Value of School 5

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	28	1.36	5	1.06	8	3.06	0.27	4.64	2.94
B	28	3.61	4	0.99	22	2.76	0.69	2.39	3.24
C	28	4.82	5	0.39	5	2.77	0.67	1.18	3.23
D	28	2.89	2	1.13	26	2.50	0.57	3.11	3.50
E	28	3.54	3	1.07	21	3.07	0.71	2.46	2.93
F	28	2.79	2	1.32	22	3.04	0.80	3.21	2.96
G	28	4.68	5	0.95	4	3.08	0.35	1.32	2.92
H	28	2.82	2	1.22	25	2.67	0.64	3.18	3.33
I	28	3.04	5	1.67	19	2.94	0.72	2.96	3.06
J	28	3.18	3	1.47	20	2.82	0.95	2.82	3.18
K	28	2.93	2	1.41	22	2.44	0.66	3.07	3.56
L	28	3.57	4	1.29	19	2.80	0.45	2.43	3.20
M	28	3.39	4	1.26	22	2.69	0.80	2.61	3.31
N	28	2.89	2	1.26	22	2.64	0.48	3.11	3.36
O	28	2.32	2	0.82	28	2.40	0.55	3.68	3.60
P	28	3.61	5	1.40	18	2.85	0.60	2.39	3.15
Q	28	3.11	3	1.07	24	2.71	0.71	2.89	3.29
R	28	2.46	3	0.79	28	2.60	0.67	3.54	3.40
S	28	2.36	2	0.91	26	2.58	0.95	3.64	3.42
T	28	2.93	3	1.02	26	2.63	0.86	3.07	3.37

Responses to Inquiry-type Use and Value of School 6

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	3.09	3	0.75	22	2.67	3	0.86	21	2.91	3.33	3	3
B	4.46	5	0.96	22	3.50	5	1.51	12	1.54	2.50	1	1
C	3.23	3	0.87	22	3.20	3	1.06	20	2.77	2.80	3	3
D	3.86	5	1.08	22	3.50	3	0.92	18	2.14	2.50	1	3
E	2.86	3	0.56	22	2.95	3	0.97	19	3.14	3.05	3	3
F	2.68	2	0.84	22	2.65	2	1.04	20	3.32	3.35	4	4
G	2.95	4	1.21	22	3.05	3	0.74	21	3.05	2.95	2	3
H	3.91	3	0.97	22	3.95	5	1.27	19	2.09	2.05	3	1
I	4.36	5	0.85	22	3.95	5	1.32	20	1.64	2.05	1	1
J	4.68	5	0.57	22	4.53	5	0.80	17	1.32	1.47	1	1
K	4.04	4	0.90	22	4.05	4	0.97	21	1.96	1.95	2	2
L	4.14	4	0.83	22	3.95	4	1.09	20	1.86	2.05	2	2
M	3.82	5	1.47	22	3.18	3	1.26	22	2.18	2.82	1	3
N	4.00	4	0.82	22	3.89	4	0.96	18	2.00	2.11	2	2
O	4.46	5	0.67	22	2.40	2	1.05	20	1.54	3.60	1	4
P	2.96	2	0.95	22	3.92	5	1.51	12	3.04	2.08	4	1
Q	4.91	5	0.30	22	2.32	2	1.11	19	1.09	3.68	1	4
R	3.52	4	0.87	22	3.45	5	1.43	20	2.48	2.55	2	1
S	2.95	3	1.09	22	4.45	5	1.29	11	3.05	1.55	3	1
T	4.86	5	0.36	22	3.74	4	0.81	19	1.14	2.26	1	2
DATA PRESENTATION												
A	4.27	4	0.63	22	3.71	4	1.06	21	1.73	2.29	2	2
B	3.91	4	0.68	22	3.32	3	1.20	19	2.09	2.68	2	3
C	3.64	4	0.79	22	3.29	4	1.19	21	2.36	2.71	2	2
D	3.41	3	0.96	22	3.62	3	1.12	21	2.59	2.38	3	3
E	3.91	4	0.87	22	3.84	4	1.01	19	2.09	2.16	2	2
F	3.64	3	0.95	22	3.71	4	1.07	14	2.36	2.29	3	2

Responses to Resource Use and Value of School 6

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	19	3.00	3	1.11	14	2.95	0.66	3.00	3.05
B	20	3.80	5	1.15	10	2.72	0.66	2.20	3.28
C	19	3.89	5	1.20	11	3.27	0.85	2.11	2.73
D	20	2.95	2	1.19	14	2.58	0.77	3.05	3.42
E	19	3.58	3	1.22	11	2.55	0.73	2.42	3.45
F	19	3.47	4	1.02	15	3.17	0.82	2.53	2.83
G	20	4.30	5	1.34	3	2.61	0.67	1.70	3.39
H	19	2.74	2	0.99	15	2.38	0.65	3.26	3.62
I	20	3.30	4	0.98	16	3.22	1.08	2.70	2.78
J	19	2.53	3	1.07	17	3.28	0.94	3.47	2.72
K	19	2.26	2	1.07	16	1.98	0.71	3.74	4.02
L	20	3.60	4	0.99	14	3.02	0.50	2.40	2.98
M	19	3.68	4	0.95	15	2.98	0.44	2.32	3.02
N	20	3.00	4	1.41	13	2.92	0.60	3.00	3.08
O	19	2.79	3	1.32	14	2.66	0.42	3.21	3.34
P	19	3.00	3	1.37	12	2.61	0.57	3.00	3.39
Q	20	3.00	2	1.21	14	2.85	0.71	3.00	3.15
R	19	2.32	2	0.95	16	2.46	0.65	3.68	3.54
S	20	1.95	1	1.19	17	2.40	0.87	4.05	3.60
T	19	2.42	2	1.07	16	2.67	0.80	3.58	3.33

Responses to Inquiry-type Use and Value of School 7

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM
A	3.18	3	1.47	11	3.20	3	1.32	10	2.82	2.80	3
B	4.91	5	0.30	11	0.00	0	0.00	0	1.09	6.00	1
C	2.91	2	0.83	11	3.00	3	1.27	11	3.09	3.00	4
D	3.82	5	1.17	11	3.56	2	1.33	9	2.18	2.44	1
E	3.73	4	1.42	11	3.40	5	1.43	10	2.27	2.60	2
F	2.55	2	1.04	11	3.42	4	1.44	12	3.45	2.58	4
G	2.27	1	1.35	11	2.46	1	1.44	11	3.73	3.54	5
H	2.08	1	1.00	12	1.83	1	0.94	12	3.92	4.17	5
I	3.55	5	1.44	12	2.89	3	1.05	9	2.45	3.11	1
J	4.33	5	1.56	12	0.00	0	0.00	0	1.67	6.00	1
K	1.91	1	1.30	12	1.70	1	0.95	10	4.09	4.30	5
L	2.00	1	1.27	12	1.63	1	1.41	8	4.00	4.37	5
M	3.75	5	1.77	12	1.83	2	1.59	12	2.25	4.17	1
N	2.82	3	1.47	11	2.00	1	1.73	3	3.18	4.00	3
O	4.82	5	0.41	11	3.10	4	0.88	10	1.18	2.90	1
P	3.08	4	1.44	12	0.00	0	0.00	0	2.92	6.00	2
Q	4.82	5	0.60	11	2.67	2	1.21	6	1.18	3.33	1
R	3.64	4	1.29	11	2.67	2	1.21	6	2.36	3.33	2
S	3.73	5	1.42	11	0.00	0	0.00	0	2.27	6.00	1
T	5.00	5	0.00	11	3.50	4	1.64	6	1.00	2.50	1
DATA PRESENTATION											
A	4.55	5	0.93	11	2.46	1	1.37	11	1.45	3.54	1
B	1.67	1	0.78	12	2.46	2	1.37	11	4.33	3.54	5
C	2.50	1	1.43	10	2.09	2	1.30	11	3.50	3.91	5
D	2.00	1	1.27	11	2.18	1	1.17	11	4.00	3.82	5
E	2.58	2	1.24	12	2.00	1	1.04	12	3.42	4.00	4
F	1.73	2	0.65	11	1.00	1	0.00	1	4.27	5.00	4

Responses to Resource Use and Value of School 7

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	12	2.83	2	0.94	9	3.28	0.61	3.17	2.72
B	12	3.92	5	1.31	6	3.17	0.61	2.08	2.83
C	12	4.42	5	1.00	4	2.25	1.22	1.58	3.75
D	12	4.58	5	0.90	3	2.72	0.69	1.42	3.28
E	12	4.17	5	1.27	4	3.33	0.53	1.83	2.67
F	12	3.17	3	1.19	10	3.22	0.75	2.83	2.78
G	12	4.00	5	1.41	5	3.33	1.05	2.00	2.67
H	12	2.50	2	1.09	11	2.76	0.88	3.50	3.24
I	12	2.92	1	1.56	9	3.15	0.84	3.08	2.85
J	12	2.83	2	1.27	9	3.11	1.01	3.17	2.89
K	12	4.33	5	1.07	4	2.75	0.65	1.67	3.25
L	12	4.00	5	1.41	4	3.33	0.27	2.00	2.67
M	12	3.83	5	1.53	5	2.73	1.32	2.17	3.27
N	12	3.33	5	1.67	8	2.81	1.21	2.67	3.19
O	12	2.50	1	1.51	9	2.87	1.22	3.50	3.13
P	12	3.08	1	1.56	8	2.79	1.06	2.92	3.21
Q	12	3.92	5	1.17	6	2.75	1.27	2.08	3.25
R	12	2.33	2	1.23	10	2.77	0.73	3.67	3.23
S	12	2.92	2	1.62	3	0.79	0.79	3.08	5.21
T	12	3.92	5	1.51	5	2.40	1.05	2.08	3.60

Responses to Inquiry-type Use and Value of School 8

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	3.28	3	0.98	25	2.96	3	1.08	24	2.72	3.04	3	3
B	4.36	5	1.00	25	3.84	5	1.30	19	1.64	2.16	1	1
C	2.84	2	1.14	25	2.76	3	0.93	25	3.16	3.24	4	3
D	3.84	3	0.94	25	3.65	4	1.18	20	2.16	2.35	3	2
E	4.24	5	1.88	25	3.67	5	1.33	18	1.76	2.33	1	1
F	3.60	4	1.19	25	3.05	3	1.43	21	2.40	2.95	2	3
G	1.52	1	1.05	25	1.88	1	1.13	25	4.48	4.12	5	5
H	3.04	4	1.06	25	2.52	2	1.03	21	2.96	3.48	2	4
I	3.40	3	1.00	25	3.09	3	1.13	23	2.60	2.91	3	3
J	4.64	5	0.86	25	4.35	5	1.22	17	1.36	1.65	1	1
K	3.24	4	1.33	25	2.61	1	1.41	23	2.76	3.39	2	5
L	3.40	5	1.44	25	3.20	2	1.36	20	2.60	2.80	1	4
M	3.96	5	1.21	25	3.08	3	1.22	25	2.04	2.92	1	3
N	3.48	4	1.12	25	3.61	5	1.34	18	2.52	2.39	2	1
O	4.28	5	0.89	25	1.72	1	0.98	25	1.72	4.28	1	5
P	2.68	3	0.90	25	3.20	5	1.61	15	3.32	2.80	3	1
Q	4.72	5	0.74	25	2.13	1	1.26	24	1.28	3.87	1	5
R	2.80	4	1.29	25	1.58	1	0.83	24	3.20	4.42	2	5
S	1.24	1	0.44	25	4.40	5	1.18	15	4.76	1.60	5	1
T	4.72	5	0.74	25	3.30	4	1.26	20	1.28	2.70	1	2
DATA PRESENTATION												
A	4.00	4	1.04	25	2.79	3	0.88	24	2.00	3.21	2	3
B	2.88	3	1.13	25	2.63	3	1.06	24	3.12	3.37	3	3
C	2.68	3	1.15	25	3.08	3	1.00	25	3.32	2.92	3	3
D	2.48	2	0.96	25	3.20	3	0.96	25	3.52	2.80	4	3
E	2.88	2	1.24	25	2.96	3	1.17	22	3.12	3.04	4	3
F	2.96	3	0.94	25	3.50	5	1.92	4	3.04	2.50	3	1

Responses to Resource Use and Value of School 8

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	25	3.20	5	1.47	18	2.57	0.89	2.80	3.43
B	25	2.84	3	1.25	21	2.60	0.68	3.16	3.40
C	25	3.52	5	1.45	14	2.33	0.90	2.48	3.67
D	25	2.64	2	0.86	24	2.38	0.62	3.36	3.62
E	25	2.64	3	0.95	25	2.85	0.77	3.36	3.15
F	25	3.28	3	0.84	23	3.16	0.75	2.72	2.84
G	25	4.64	5	0.76	6	3.39	1.05	1.36	2.61
H	25	2.40	2	0.76	25	2.23	0.75	3.60	3.77
I	25	3.56	5	1.45	14	3.02	1.02	2.44	2.98
J	25	2.56	2	1.12	23	3.04	0.78	3.44	2.96
K	25	2.24	2	1.17	23	1.91	0.82	3.76	4.09
L	25	3.24	3	1.36	18	2.75	0.81	2.76	3.25
M	25	3.60	5	1.32	16	2.49	0.44	2.40	3.51
N	25	3.64	4	1.32	17	2.92	0.83	2.36	3.08
O	25	2.68	3	1.07	22	2.52	0.68	3.32	3.48
P	25	2.72	2	1.14	23	2.59	0.55	3.28	3.41
Q	25	2.44	2	1.12	22	3.03	0.85	3.56	2.97
R	25	2.28	1	1.21	23	2.38	0.84	3.72	3.62
S	25	1.88	1	1.13	25	2.23	0.84	4.12	3.77
T	25	3.04	2	1.10	21	2.41	0.67	2.96	3.59

Responses to Inquiry-type Use and Value of School 9

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	4.44	5	1.37	16	4.13	5	1.64	15	1.56	1.87	1	1
B	5.00	5	0.00	16	4.71	5	1.07	14	1.00	1.29	1	1
C	2.25	3	0.93	16	2.75	3	0.93	16	3.75	3.25	3	3
D	3.69	4	1.92	16	3.63	5	1.54	16	2.31	2.37	2	1
E	3.56	3	1.26	16	3.47	5	1.46	15	2.44	2.53	3	1
F	2.38	2	1.20	16	2.67	2	1.40	15	3.62	3.33	4	4
G	2.44	2	1.21	16	2.63	1	1.46	16	3.56	3.37	4	5
H	2.25	3	1.18	16	2.75	3	1.18	16	3.75	3.25	3	3
I	3.31	3	1.35	16	3.69	5	1.45	16	2.69	2.31	3	1
J	4.94	5	0.25	16	4.62	5	1.12	13	1.06	1.38	1	1
K	2.81	1	1.83	16	3.19	5	1.76	16	3.19	2.81	5	1
L	2.06	1	1.06	16	2.33	1	1.72	15	3.94	3.67	5	5
M	2.50	1	1.59	16	3.69	5	1.66	16	3.50	2.31	5	1
N	3.75	5	1.61	16	4.00	5	1.36	15	2.25	2.00	1	1
O	4.31	5	0.95	16	2.63	3	1.20	16	1.69	3.37	1	3
P	2.44	1	1.36	16	3.00	2	1.32	16	3.56	3.00	5	4
Q	3.06	3	1.00	16	2.60	3	1.12	15	2.94	3.40	3	3
R	2.50	3	1.27	16	2.75	1	1.39	16	3.50	3.25	3	5
S	2.56	3	1.21	16	4.15	5	1.46	13	3.44	1.85	3	1
T	4.81	5	0.75	16	2.87	2	1.41	15	1.19	3.13	1	4
DATA PRESENTATION												
A	3.31	3	1.25	16	2.69	2	1.54	16	2.69	3.31	3	4
B	2.06	1	1.00	16	2.69	2	1.45	16	3.94	3.31	5	4
C	2.12	1	0.96	16	2.69	3	1.40	16	3.88	3.31	5	3
D	2.37	1	1.26	16	3.33	5	1.54	15	3.63	2.67	5	1
E	2.81	2	1.22	16	2.86	5	1.75	14	3.19	3.14	4	1
F	2.63	3	1.15	16	3.37	5	1.77	8	3.37	2.63	3	1

Responses to Resource Use and Value of School 9

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	16	2.69	2	0.79	14	2.56	0.67	3.31	3.44
B	15	2.80	2	1.01	13	3.13	0.87	3.20	2.87
C	14	4.64	5	0.84	3	2.11	0.82	1.36	3.89
D	15	3.20	2	1.27	12	2.51	0.93	2.80	3.49
E	16	2.31	2	1.01	15	2.34	0.89	3.69	3.66
F	14	4.21	5	1.19	6	2.94	0.54	1.79	3.06
G	13	4.92	5	0.28	1	4.67	0.00	1.08	1.33
H	16	2.44	1	1.63	12	2.22	0.74	3.56	3.78
I	16	1.94	1	1.06	16	2.98	0.74	4.06	3.02
J	15	4.00	5	1.51	5	3.00	0.64	2.00	3.00
K	16	2.06	1	1.12	14	1.99	0.73	3.94	4.01
L	14	3.71	3	1.20	9	2.76	0.45	2.29	3.24
M	14	4.50	5	1.09	2	2.67	0.00	1.50	3.33
N	15	3.67	5	1.35	7	2.98	0.30	2.33	3.02
O	16	3.56	5	1.55	8	2.73	0.62	2.44	3.27
P	14	3.14	2	1.61	9	2.87	0.79	2.86	3.13
Q	14	1.64	1	0.75	12	2.90	0.45	4.36	3.10
R	15	1.87	1	1.13	13	2.63	0.83	4.13	3.37
S	16	1.75	1	0.93	15	2.63	0.82	4.25	3.37
T	15	3.07	3	1.10	12	2.71	0.83	2.93	3.29

Responses to Inquiry-type Use and Value of School 10

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	3.22	3	0.44	14	3.11	3	1.36	14	2.78	2.89	3	3
B	4.56	5	1.33	14	2.62	3	0.92	13	1.44	3.38	1	3
C	3.00	3	0.71	14	2.44	3	0.73	14	3.00	3.56	3	3
D	4.33	5	1.32	14	3.00	1	2.00	5	1.67	3.00	1	5
E	3.78	5	1.48	14	3.67	5	2.31	5	2.22	2.33	1	1
F	2.56	2	0.73	14	2.62	2	1.06	13	3.44	3.38	4	4
G	1.56	2	0.53	14	1.50	1	0.76	13	4.44	4.50	4	5
H	2.44	3	0.73	14	3.25	3	0.89	13	3.56	2.75	3	3
I	3.00	3	0.00	14	3.00	3	1.00	14	3.00	3.00	3	3
J	3.78	4	1.09	14	4.37	5	0.74	13	2.22	1.63	2	1
K	3.89	5	1.69	14	3.00	3	1.29	11	2.11	3.00	1	3
L	1.56	1	0.73	14	2.62	1	1.41	12	4.44	3.38	5	5
M	1.33	1	0.50	14	2.44	2	1.13	14	4.67	3.56	5	4
N	3.22	3	1.30	14	3.57	3	1.40	11	2.78	2.43	3	3
O	4.22	5	0.97	14	1.11	1	0.33	14	1.78	4.89	1	5
P	1.67	1	0.71	14	4.40	5	1.34	8	4.33	1.60	5	1
Q	4.44	5	1.33	14	1.00	1	0.00	14	1.56	5.00	1	5
R	1.56	2	0.53	14	1.75	1	0.89	12	4.44	4.25	4	5
S	2.22	3	0.97	14	4.60	5	0.89	8	3.78	1.40	3	1
T	4.22	5	1.56	14	3.67	4	1.37	10	1.78	2.33	1	2
DATA PRESENTATION												
A	4.89	5	0.33	14	3.25	3	0.89	13	1.11	2.75	1	3
B	2.67	2	0.71	14	2.75	3	0.46	13	3.33	3.25	4	3
C	2.67	2	1.41	14	2.44	2	1.13	14	3.33	3.56	4	4
D	2.44	3	0.73	14	2.44	2	0.53	14	3.56	3.56	3	4
E	2.33	2	0.71	14	2.89	2	1.36	14	3.67	3.11	4	4
F	2.78	2	1.20	14	3.00	2	1.30	5	3.22	3.00	4	4

Responses to Resource Use and Value of School 10

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	14	2.67	3	0.50	14	3.65	0.57	3.33	2.35
B	14	1.67	2	0.50	14	3.06	0.82	4.33	2.94
C	14	3.78	3	1.09	10	3.58	0.77	2.22	2.42
D	14	4.44	5	0.73	5	4.04	0.60	1.56	1.96
E	14	2.11	2	0.78	14	2.89	0.53	3.89	3.11
F	14	2.33	2	1.23	12	3.23	0.94	3.67	2.77
G	14	4.33	4	0.50	10	3.89	0.65	1.67	2.11
H	14	2.33	2	0.50	14	2.67	0.92	3.67	3.33
I	14	2.44	2	1.13	12	3.48	0.57	3.56	2.52
J	14	1.22	1	0.44	14	2.37	0.63	4.78	3.63
K	14	1.44	1	0.88	14	2.33	0.75	4.56	3.67
L	14	2.33	2	0.87	14	2.98	0.85	3.67	3.02
M	14	3.89	4	1.05	10	3.11	1.10	2.11	2.89
N	14	1.56	1	0.88	14	3.06	0.99	4.44	2.94
O	14	1.22	1	0.44	14	2.85	1.00	4.78	3.15
P	14	3.78	5	1.30	9	3.70	1.26	2.22	2.30
Q	14	2.44	2	0.73	14	3.00	0.64	3.56	3.00
R	14	2.22	2	0.97	14	3.04	0.55	3.78	2.96
S	14	1.89	1	0.93	14	3.13	1.27	4.11	2.87
T	14	2.00	2	0.87	14	2.85	0.64	4.00	3.15

Responses to Inquiry-type Use and Value of School 11

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	3.56	5	1.59	9	3.25	1	1.58	8	2.44	2.75	1	5
B	4.88	5	0.35	8	4.83	5	0.41	6	1.12	1.17	1	1
C	4.13	4	0.84	8	4.33	4	0.52	6	1.87	1.67	2	2
D	3.63	3	0.74	8	4.00	5	1.29	7	2.37	2.00	3	1
E	3.22	3	0.67	9	3.25	2	1.28	8	2.78	2.75	3	4
F	3.00	3	0.76	8	3.33	5	1.50	9	3.00	2.67	3	1
G	1.44	1	0.53	9	2.00	1	1.32	9	4.56	4.00	5	5
H	3.67	4	1.41	9	3.67	4	1.12	9	2.33	2.33	2	2
I	4.00	5	1.12	9	3.83	4	1.17	6	2.00	2.17	1	2
J	4.56	5	1.33	9	4.50	5	1.23	6	1.44	1.50	1	1
K	3.89	4	1.27	9	4.17	5	0.98	6	2.11	1.83	2	1
L	3.11	2	1.45	9	3.33	2	1.37	6	2.89	2.67	4	4
M	3.44	3	1.24	9	2.78	2	1.92	9	2.56	3.22	3	4
N	2.44	2	0.88	9	4.17	5	1.33	6	3.56	1.83	4	1
O	4.33	5	1.32	9	2.33	1	1.41	9	1.67	3.67	1	5
P	1.78	1	1.09	9	4.00	5	1.41	5	4.22	2.00	5	1
Q	3.33	5	1.50	9	2.63	1	1.77	8	2.67	3.37	1	5
R	1.78	2	0.67	9	2.57	2	1.72	7	4.22	3.43	4	4
S	2.44	1	1.51	9	3.67	5	1.63	6	3.56	2.33	5	1
T	1.11	5	1.36	9	3.71	5	1.38	7	4.89	2.29	1	1
DATA PRESENTATION												
A	4.25	5	0.89	8	4.00	3	1.00	7	1.75	2.00	1	3
B	3.67	3	0.87	9	3.43	3	0.98	7	2.33	2.57	3	3
C	3.44	3	1.13	9	3.29	2	1.10	7	2.56	2.71	3	4
D	3.00	3	1.41	8	3.57	4	0.98	7	3.00	2.43	3	2
E	2.63	2	1.30	8	3.43	3	0.98	7	3.37	2.57	4	3
F	3.38	3	1.06	8	2.83	2	1.17	6	2.62	3.17	3	4

Responses to Resource Use and Value of School 11

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	4	3.50	2	1.29	3	3.22	1.17	2.50	2.78
B	4	3.25	1	1.71	3	3.17	0.73	2.75	2.83
C	4	4.75	5	0.50	1	2.50	0.00	1.25	3.50
D	4	3.00	3	0.82	4	2.63	0.44	3.00	3.37
E	4	3.25	3	1.26	3	2.89	0.35	2.75	3.11
F	4	3.00	3	0.82	4	2.38	0.48	3.00	3.62
G	4	4.50	5	1.00	1	2.67	0.00	1.50	3.33
H	4	1.75	1	0.96	4	1.67	0.71	4.25	4.33
I	4	2.25	2	0.50	4	3.08	0.65	3.75	2.92
J	4	3.50	3	1.00	3	2.72	0.54	2.50	3.28
K	4	4.00	4	0.82	3	2.06	0.35	2.00	3.94
L	4	3.75	4	1.26	3	2.94	0.86	2.25	3.06
M	4	4.00	3	1.16	2	2.42	0.35	2.00	3.58
N	4	3.00	3	0.00	4	2.42	0.52	3.00	3.58
O	4	2.75	3	0.50	4	2.38	0.44	3.25	3.62
P	4	3.75	3	0.96	3	3.17	0.33	2.25	2.83
Q	4	3.00	4	1.41	4	2.17	0.71	3.00	3.83
R	4	2.25	2	0.50	4	2.71	0.75	3.75	3.29
S	4	2.00	2	0.00	4	2.42	1.19	4.00	3.58
T	4	4.00	4	0.82	2	2.42	0.12	2.00	3.58

Responses to Inquiry-type Use and Value of School 12

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM	VM
A	4.50	5.00	0.93	84.00	4.15	5.00	1.07	39.00	1.50	1.85	1	1
B	4.71	5.00	0.67	85.00	4.19	5.00	1.05	31.00	1.29	1.81	1	1
C	2.39	2.00	1.03	85.00	2.52	3.00	1.18	82.00	3.61	3.48	4	3
D	3.32	3.00	1.23	85.00	3.00	2.00	1.27	70.00	2.68	3.00	3	4
E	2.31	2.00	1.11	85.00	2.01	2.00	0.94	83.00	3.69	3.99	4	4
F	3.86	5.00	1.26	85.00	3.12	4.00	1.48	52.00	2.14	2.88	1	2
G	2.11	1.00	1.23	85.00	2.20	1.00	0.16	82.00	3.89	3.80	5	5
H	2.54	2.00	0.18	85.00	2.46	2.00	1.11	81.00	3.46	3.54	4	4
I	3.07	3.00	0.09	85.00	3.14	3.00	1.05	74.00	2.93	2.86	3	3
J	4.78	5.00	0.59	85.00	4.56	5.00	1.01	27.00	1.22	1.44	1	1
K	3.81	5.00	1.18	85.00	3.28	3.00	0.14	60.00	2.19	2.72	1	3
L	3.05	2.00	1.29	85.00	2.83	3.00	1.32	64.00	2.95	3.17	4	3
M	3.73	5.00	1.28	85.00	2.72	3.00	1.62	85.00	2.27	3.28	1	3
N	3.81	4.00	1.06	85.00	3.10	5.00	1.49	52.00	2.19	2.90	2	1
O	4.11	5.00	1.32	85.00	2.12	2.00	1.04	78.00	1.89	3.88	1	4
P	2.61	3.00	1.09	85.00	3.70	5.00	1.33	27.00	3.39	2.30	3	1
Q	4.89	5.00	0.35	85.00	2.79	2.00	1.14	75.00	1.11	3.21	1	4
R	3.27	4.00	1.13	85.00	1.77	1.00	1.02	78.00	2.73	4.23	2	5
S	2.15	1.00	1.26	85.00	3.65	5.00	1.55	26.00	3.85	2.35	5	1
T	4.88	5.00	0.52	85.00	3.17	3.00	1.10	71.00	1.12	2.83	1	3
DATA PRESENTATION											0	
A	3.29	4.00	1.14	85.00	2.56	3.00	1.03	78.00	2.71	3.44	2	3
B	2.20	2.00	1.00	85.00	2.72	2.00	1.25	79.00	3.80	3.28	4	4
C	2.38	2.00	1.06	85.00	2.71	3.00	1.20	79.00	3.62	3.29	4	3
D	2.61	3.00	1.11	85.00	2.72	2.00	1.14	79.00	3.39	3.28	3	4
E	2.84	3.00	1.14	85.00	2.63	3.00	1.15	81.00	3.16	3.37	3	3
F	2.36	2.00	1.04	85.00	2.24	1.00	1.12	29.00	3.64	3.76	4	5

Responses to Resource Use and Value of School 12

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	85.00	2.51	2.00	1.17	77.00	2.79	0.79	3.49	3.21
B	85.00	2.92	3.00	1.16	75.00	2.81	3.72	3.08	3.19
C	85.00	3.67	5.00	1.15	57.00	2.65	0.91	2.33	3.35
D	85.00	3.11	3.00	1.15	73.00	2.67	0.89	2.89	3.33
E	85.00	3.59	5.00	1.17	61.00	2.99	0.90	2.41	3.01
F	85.00	2.75	2.00	1.25	73.00	2.86	0.97	3.25	3.14
G	84.00	4.51	5.00	0.87	24.00	3.17	1.03	1.49	2.83
H	85.00	2.31	2.00	1.05	83.00	2.27	0.83	3.69	3.73
I	84.00	3.17	4.00	1.28	70.00	3.06	1.02	2.83	2.94
J	83.00	3.17	5.00	1.38	63.00	2.73	0.74	2.83	3.27
K	84.00	2.13	2.00	0.98	82.00	1.87	0.70	3.87	4.13
L	84.00	3.46	4.00	1.17	64.00	2.94	0.90	2.54	3.06
M	84.00	2.99	5.00	1.51	59.00	2.56	0.96	3.01	3.44
N	84.00	2.91	3.00	1.25	73.00	3.15	0.87	3.09	2.85
O	84.00	2.08	2.00	1.00	80.00	2.28	0.77	3.92	3.72
P	84.00	3.49	5.00	1.38	56.00	2.57	0.99	2.51	3.43
Q	84.00	2.74	2.00	1.19	75.00	2.98	0.99	3.26	3.02
R	84.00	2.55	2.00	1.01	78.00	2.63	0.97	3.45	3.37
S	84.00	1.99	2.00	0.98	79.00	2.22	0.95	4.01	3.78
T	84.00	3.83	4.00	1.07	55.00	2.83	0.94	2.17	3.17

RESOURCE USE FREQUENCY AND PERCEPTION OF USE OF ALL AGI STUDENTS

	FMEAN	FMODE	FSD	FN	VMEAN	VMODE	VSD	VN	GF	GV	FM
A	3.53	5	1.33	347	3.14	3	1.37	276	2.47	2.86	1
B	4.45	5	1.01	346	3.75	5	1.35	187	1.55	2.25	1
C	2.94	3	1.13	347	2.79	3	1.16	324	3.06	3.21	3
D	3.36	3	1.24	347	3.06	3	1.28	280	2.64	2.94	3
E	2.82	3	1.26	348	2.53	2	1.24	313	3.18	3.47	3
F	3.26	3	1.28	347	2.97	3	1.32	286	2.74	3.03	3
G	2.18	1	1.18	349	2.23	1	1.14	333	3.82	3.77	5
H	2.73	3	1.23	347	2.67	3	1.19	327	3.27	3.33	3
I	3.10	3	1.12	347	3.09	3	1.20	309	2.90	2.91	3
J	4.74	5	0.74	348	4.59	5	0.90	167	1.26	1.41	1
K	3.47	5	1.32	347	3.13	4	1.29	274	2.53	2.87	1
L	3.10	4	1.30	347	2.90	3	1.32	277	2.90	3.10	2
M	3.47	5	1.45	350	2.76	3	1.57	350	2.53	3.24	1
N	3.50	3	1.13	347	3.43	5	1.35	235	2.50	2.57	3
O	4.13	5	1.14	344	2.32	2	1.19	312	1.87	3.68	1
P	2.74	3	1.22	346	3.33	5	1.45	198	3.26	2.67	3
Q	4.28	5	1.16	345	2.50	2	1.24	294	1.72	3.50	1
R	3.08	3	1.22	345	2.22	1	1.23	312	2.92	3.78	3
S	2.34	1	1.25	346	4.26	5	1.19	146	3.66	1.74	5
T	4.77	5	0.68	344	3.36	4	1.11	267	1.23	2.64	1
DATA PRESENTATION											
A	3.73	5	1.16	342	2.77	3	1.18	318	2.27	3.23	1
B	2.63	3	1.12	347	2.75	3	1.20	310	3.37	3.25	3
C	2.71	3	1.16	343	2.68	3	1.18	318	3.29	3.32	3
D	2.55	3	1.11	344	2.72	3	1.18	318	3.45	3.28	3
E	2.76	2	1.17	345	2.68	3	1.21	317	3.24	3.32	4
F	2.57	3	1.11	342	2.76	1	1.37	107	3.43	3.24	3

ATTITUDES OF AGI STUDENTS TO INQUIRY TYPES

	EN	EMEAN	EMODE	ESD	VN	VMEAN	VSD	GE	GV
A	339	3.38	5	1.35	215	2.90	0.75	2.62	3.10
B	338	3.31	5	1.33	234	2.82	0.72	2.69	3.18
C	337	3.90	5	1.25	166	2.73	0.89	2.10	3.27
D	336	3.32	3	1.25	238	2.60	0.78	2.68	3.40
E	339	3.29	3	1.27	248	2.89	0.88	2.71	3.11
F	338	3.01	3	1.29	268	2.98	0.88	2.99	3.02
G	333	4.53	5	0.91	84	3.25	0.94	1.47	2.75
H	337	2.81	2	1.24	280	2.48	0.86	3.19	3.52
I	339	2.96	2	1.39	258	3.02	0.93	3.04	2.98
J	335	2.85	3	1.34	257	2.76	0.84	3.15	3.24
K	336	2.37	2	1.18	295	2.06	0.73	3.63	3.94
L	336	3.39	5	1.30	228	2.78	0.73	2.61	3.22
M	335	3.43	5	1.47	199	2.59	0.81	2.57	3.41
N	337	3.22	3	1.32	244	2.93	0.82	2.78	3.07
O	337	2.28	1	1.15	295	2.47	0.76	3.72	3.53
P	332	3.31	5	1.42	218	2.76	1.03	2.69	3.24
Q	334	3.02	3	1.25	263	2.86	0.85	2.98	3.14
R	332	2.21	2	1.08	298	2.57	0.85	3.79	3.43
S	336	2.04	2	1.04	303	2.42	0.94	3.96	3.58
T	331	3.26	3	1.24	241	2.60	0.84	2.74	3.40

APPENDIX C

EXPLANATIONS AND LEGENDS
FOR THE
GRAPHICS IN THE CASE STUDY REPORTS

EXPLANATIONS AND LEGENDS OF THE GRAPHICS IN THE CASE STUDIES

Student responses to the 20 inquiry types

1. The significance of the bars

(a) Student perceptions of their experiences of the inquiry types

The heights of the bars represent mean student ratings for the frequency with which they considered that they had experienced each type of inquiry during their AGI course. A student response of "10" signifies that the student believes that a particular type of inquiry has not been experienced at all during the AGI course. A response of "50" signifies that the type of inquiry has been undertaken a great deal during the course.

(b) Student perceptions of the value of each of the inquiry types

The heights of the bars represent mean student ratings for their perception of the value of each type of inquiry procedure. A student response of "50" signifies that the student regards a particular type of inquiry as of great value. A student response of "10" signifies that the type of inquiry is regarded as of no value to the student. An empty bar signifies that fewer than half the students in the teaching group responded to the question.

2. The legend to the inquiry types

A An inquiry into a specific problem
B An inquiry into an issue of wide applicability
C Creating a new or imaginative approach to a problem
D An inquiry to examine beauty, goodness or worth
E An inquiry designed to help student to clarify their own perceptions
F Inquiries based on statistical manipulations
G Inquiries based on the use of scientific equipment
H Inquiries based on investigations in the field
I Inquiries based on library research
J Inquiries into problems chosen by the teacher
K Inquiries into problems selected by students as individuals
L Inquiries into a problem selected by students from a list provided
M Inquiries into problems selected by the class as a whole
N Inquiries which are strongly structured by the teacher
O Inquiries in which teacher's role is to provide help when asked
P Inquiries in which teacher is only present to keep order
Q Inquiries in which all resources are provided by the teacher
R Inquiries in which students are expected to find their own resources
S Inquiries in which the students work alone to produce a final report
T Inquiries in which students work in groups to produce a group report

Student response to potential resources and data presentation modes

1. The significance of the bars

(a) Student perceptions of the frequency with which resources were used

The height of the bars signifies the modal value of student responses when asked about the frequency with which they used the resources. The figures 10 to 50 signify that specific resources were used as follows:

10. Not used at all this semester
20. Used very little this semester
30. Used sometimes this semester
40. Used quite a lot this semester
50. Of overwhelming importance in work this semester

(b) Student perceptions of the value of each resource to their work

The height of the bars signifies the modal value of student responses when asked to evaluate the contribution of each resource to their work. The figures 10 to 50 signify responses as follows:

10. Extremely useful in helping with my inquiries this semester
20. Very useful in helping with my inquiries this semester
30. Quite useful in helping with my inquiries this semester
40. Only slightly useful in helping with my inquiries this semester
50. This resource was of no real use in helping with my inquiries

2. Legend to the resources

A School level text books
B College level text books
C Magazine articles
D Film strips / slides
E Videos / films
F Encyclopaedias
G Photocopies provided by the teacher
H Books of statistical tables
I Atlases
J Novels and/or poems
K Handouts from industries or firms
L Government information sheets and reports
M Information sheets from Community groups
N Topographical and cadastral maps
O Audio tapes
P Field investigations
Q Visiting speakers
R Visits out of school
S Teacher-prepared worksheets
T Laboratory-type equipment

3. Legend to data presentation modes

A Photographs
B Tables of figures
C Written descriptions
D Diagrams
E Maps (atlas or topographical)
F Graphs

EXPLANATIONS AND LEGENDS OF THE GRAPHICS IN THE CASE STUDIES

Student responses to the 20 inquiry types

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(a) Student perceptions of their experiences of the inquiry types

The heights of the bars represent mean student ratings for the frequency with which they considered that they had experienced each type of inquiry during their AGI course. A student response of "10" signifies that the student believes that a particular type of inquiry has not been experienced at all during the AGI course. A response of "50" signifies that the type of inquiry has been undertaken a great deal during the course.

(b) Student perceptions of the value of each of the inquiry types

The heights of the bars represent mean student ratings for their perception of the value of each type of inquiry procedure. A student response of "50" signifies that the student regards a particular type of inquiry as of great value. A student response of "10" signifies that the type of inquiry is regarded as of no value to the student. An empty bar signifies that fewer than half the students in the teaching group responded to the question.

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C Creating a new or imaginative approach to a problem
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L Inquiries into a problem selected by students from a list provided
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Student response to potential resources and data presentation modes

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The height of the bars signifies the modal value of student responses when asked about the frequency with which they used the resources. The figures 10 to 50 signify that specific resources were used as follows:

10. Not used at all this semester
20. Used very little this semester
30. Used sometimes this semester
40. Used quite a lot this semester
50. Of overwhelming importance in work this semester

(b) Student perceptions of the value of each resource to their work

The height of the bars signifies the modal value of student responses when asked to evaluate the contribution of each resource to their work. The figures 10 to 50 signify responses as follows:

10. Extremely useful in helping with my inquiries this semester
20. Very useful in helping with my inquiries this semester
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I Atlases
J Novels and/or poems
K Handouts from industries or firms
L Government information sheets and reports
M Information sheets from Community groups
N Topographical and cadastral maps
O Audio tapes
P Field investigations
Q Visiting speakers
R Visits out of school
S Teacher-prepared worksheets
T Laboratory-type equipment

3. Legend to data presentation modes

A Photographs
B Tables of figures
C Written descriptions
D Diagrams
E Maps (atlas or topographical)
F Graphs